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DERMATOPHYTOSIS—THE NEWER RINGWORM

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It is scarcely necessary to elaborate on the scope and limitations of the disease long known as ringworm. Every physician can envisage how the term may have come into vogue, and how it was at first applied to a variety of more or less circumscribed lesions, annular and otherwise, which had a tendency toward peripheral spreading and perhaps central clearing. I have no doubt that some cases of psoriasis and syphilis were included in that category in the olden days. After that, with the discovery that in most of such cases fungus could be found, the term ringworm became confined to a more contracted group of lesions, not only circumscribed but even diffuse, which were caused by fungus, or at least in which fungus was found. As it stands today, then, any disease of the skin (with the exception of favus) which is caused by fungus may be admitted into the category of ringworm. Favus maintains a separate position by grace of tradition, but it belongs in the ringworm concept.

It is obvious that it would be impossible to cover the entire subject of ringworm in a single paper. For instance, the conventional way to treat the subject of ringworm in general is by region, as ringworm of the scalp, ringworm of the beard, of the nails, of the toes or of the groins. Ringworm which affects the glabrous, nonhairy skin has been known in the past for the most part as tinea circinata and is the closest relative to the dermatophytosis which will be dealt with next.

DERMATOPHYTOSIS

The term dermatophytosis, etymologically speaking, should, of course, be all-inclusive to comprise all the ringworms, regional and otherwise. Perhaps it should also include bacterial (phyton) infections, but that is rather too large an order. "Epidermomycosis" and "epidermophytosis" are synonymous with it. As it stands, it includes phases of ringworm which are in part old and in part new, but so much has been added to our knowledge of it of late that I feel quite justified in using the term "new" in the title without any qualification. In a nutshell, it embraces the superficial fungus diseases which develop in intertriginous positions or which are extensions secondary to foci in such positions. This definition excludes such deeper mycoses as sporotrichosis and blastomycosis. However, it must be granted that there are forms of the disease which at times are quite unassociated with any demonstrable intertriginous disorder, making it possible here to overlap with tinea circinata. I believe that there is a tendency to include the older tinea circinatas with dermatophytosis (at least in the pathologic sense) and cannot see any objection to it; it is the present-day trend to group these sundry and perhaps bizarre clinical expressions (as in syphilis and Duhring's disease) as soon as a relationship can be established between them. Particularly should this be the case when, as in dermatophytosis, they are etiologically homogeneous. Therefore, dermatophytosis includes all those superficial fungous infections of the glabrous parts of the skin, particularly the intertriginous forms or those with intertriginous affinities.

Before passing, then, to the more systematic considerations of dermatophytosis, be it advertised that the phase of the subject which is particularly "new" to the profession is the realization that many scaly, more or less discoidal plaques on the skin which have been heretofore regarded as eczemas or, less frequently, as psoriasis or lichen planus, as well as certain obstinate intertrigos, have been demonstrated to be caused by fungus and therefore to be expressions of dermatophytosis. Like appendicitis, the disease has been with us long since; the "new" phase of it is born in ourselves. Perhaps the rôle of yeasts as etiologic agents will also be proved to comprise a phase of this "newer" ringworm, as will be brought out more fully later.

FREQUENCY

It will not be necessary to dwell very long on the frequency of the occurrence of ringworm. At the University of Pennsylvania, we have found that 67 per cent of 100 medical students examined had more or less severe ringworm of the toes, and that of these it was possible to demonstrate the fungus by culture in 5 per cent. A Boston dermatologist, Dr. Charles J. White, reported 150 cases a year in his private practice alone. It is so important that the public health laboratories recently conducted a survey of the situation by means of a questionnaire broadcast among representative dermatologists. Every physician will at once realize how common the condition is when I say that the familiar cracked toe and soft corn is frequently nothing more nor less than a fungous infection. It is a particular scourge in our Southern states.

It is not a disease that kills. It does sometimes quite incapacitate; secondary infections occur taking the form of an eczema which is so itchy or painful as to prevent walking or to incapacitate otherwise. I recall a music teacher who had the disease around the genitalia. The itching was so intense that her sleep was interfered with to the extent that she almost became a candidate for the insane asylum.

SYMPTOMATOLOGY

The symptomatology is highly varied because the part affected may be so different and because secondary

infection so readily modifies the appearance of the primary involvement. In a short paper like this it is impossible to give all of the shadings in symptomatology and differential diagnosis; indeed, I feel that the analytic physician who knows eczema can construct for himself the symptoms after what I have just stated about the disease tending to be primarily intertriginous and superficial. Let it be put this way: First, when dealing with a superficial erythematous disorder in an intertriginous position, it is advisable to consider ringworm. Sometimes it has the features of an acute eczema, being moist or even suppurative. Again, there are other forms which are dry, finely scaly, and perhaps brownish. Other forms may be definitely thickened and as strongly scaly as one sees in an old, chronic eczema. "Eczematoid ringworm" is a commonly used designation for some forms. The intertriginous parts commonly affected are the toes, particularly between the fourth and the fifth; the groin; between the fingers, between the third and the fourth; in the axilla; under the breasts, and around the anus. Some cases of pruritus ani are caused by a ringworm fungus. In short, the cutaneous changes may run the whole gamut from acute erythematous through vesicular and pustular into the chronic scaly and indurative types.

DIFFERENTIAL DIAGNOSIS

It would be presumptuous to attempt to give the complete differential diagnosis of dermatophytosis in a paper of this scope, involving as it does a consideration of such conditions as eczema, syphilis, psoriasis, lichen planus and pityriasis rosea.[1] Some of the forms are classic, but many require the most careful consideration of the skilled dermatologist and are often diagnosed only by exclusion; i. e., from a thorough knowledge and insight of other dermatoses which may more or less resemble dermatophytosis. Fortunately, we have a recourse by identifying the fungus, a life-saver for the practitioner. The technic is one of the simplest of all technical procedures—so simple that it should not be designated as a laboratory test. It is an office test, and is performed as follows:

Summary of American Species

	Cases		Cases
Trichophyton interdigitale	140	Trichophyton acuminatum	2
Epidermophyton cruris	54	Trichophyton granulosum	2
Unidentified	20	Trichophyton lacticolor	2
Trichophyton rubrum	17	Trichophyton plicatile	1
Trichophyton gypseum	17	Trichophyton amethysticum	1
Odium albicans	8	Trichophyton violaceum	1
Trichophyton asteroides	3	Sporotrichum schenkii	1
Trichophyton pedis	3		
Total			272

Scrapings are collected for microscopic examination, a scalpel being used as a rule and material chosen preferably from the *margin* of a patch. On these scales, on a glass slide, one or two *small* drops of 10 per cent sodium hydroxide solution are placed. The coverslip is then applied, and the preparation is ready for examination under the microscope. This is indeed a procedure of the utmost simplicity, and one from which no practitioner can excuse himself. On the other hand, the knowledge of the appearance of the ringworm fungus may demand some experience, but this can be acquired after a few trials, and the materials for the microscopic examination are readily available. The fungus can almost always be seen under the low power of the microscope, but it is always better to confirm the first impressions with the high power. In the case of thick scrapings, such as come from between the toes, ten or twelve hours may be required for them to clear up sufficiently in the alkaline solution. I make it a rule not to give a final diagnosis on such materials until I have reexamined the preparation the next morning. The only serious objection to this test lies in its negative phase: the fungus is not always found even in known cases of ringworm. From this it follows that after one failure successive attempts should be repeatedly made to demonstrate the fungus. Cultures only occasionally lead to a positive diagnosis when direct microscopic examinations have failed.

Up to this point, the following working rules of thumb might be given as guides to the diagnosis of ringworm in a given patient: First, the lesion is intertriginous, and, particularly, it may be sharply marginated. Second, it has some of the qualities of eczema without quite fulfilling all the requirements. In cases of this sort the third rule must be added: Scrapings should be examined under the microscope by the alkali technic. This much will enable the general practitioner to pick up a goodly number of cases of dermatophytosis. It goes without saying that numbers will be missed, not alone by the general practitioner but also by the specialist.

PATHOLOGIC MANIFESTATIONS

A great variety of micro-organisms is concerned in dermatophytosis. Altogether in the United States no less than fifteen different species, belonging not alone to the hyphomycetes but also to the yeasts, have been described, and, if the foreign ones are added, the list is multiplied. The accompanying table gives the names of the American species. Whereas it was thought in the past that the hyphomycetes were almost exclusively concerned, yeast species and even sporotrichums are of late being more and more frequently incriminated. It is obvious that the greatest care must be exercised in judging the pathogenic rôle of fungi in such a place as the skin. The evidence in respect to yeasts has accumulated slowly, but all of Koch's postulates have been finally satisfied in a number of cases, the organism having reproduced disease on experimentally inoculated human volunteers. It appears that pathogenic yeasts are present on normal skins and that some additional predisposing factor is necessary for them to invade the skin. It is easy to speculate on the rôle which warmth, moisture and microscopic abrasions in intertriginous positions play in this connection. Certain it is, too, that individual predisposition plays a big part in the matter; there are large numbers of cases in which the male has been affected without his consort's also being infected.

The toe cases are probably acquired in bath rooms, gymnasiums or turkish baths. The highly strung man of affairs who perspires readily is much more predisposed than the phlegmatic laborer; the disease is preeminently one of private practice. For its occurrence in other parts than the toes, however, one cannot lay down any such postulates.

GENERALIZATION

A practical question that has arisen of late concerns the extent to which generalization may occur. Thus, a variety of widespread eruptions has been described subsequent to an established dermatophytosis, some scarlatiniform, some taking the form of minute pap-

1. White, C. J.: Fungus Diseases of the Skin, Arch. Dermat. & Syph. **15**: 387 (April) 1927. Sutton: Diseases of the Skin, ed. 6, St. Louis, C. V. Mosby Company, 1926. Ormsby: Diseases of the Skin, ed. 3, Philadelphia, Lea & Febiger, 1927.

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ules, and others delicately scaly, which have received the name of "dermatophytid." The theory is that not only toxic material but also the actual fungus elements attain the blood stream and affect the skin. In one or two isolated cases the organism has been recovered from the secondary lesion in the skin and also from cultures taken from the blood stream. Cleveland J. White has recently demonstrated the same species of fungus in swollen inguinal lymph nodes and between the toes of one patient. This marks a radical departure from accepted notions in pathology; i. e., that such a superficial infection as caused by fungi should give rise to such widespread and deep extension.

HYGIENE

It is my belief that many cases of ringworm of the toes are fully cured; that the fungus is completely eradicated, and that the well known obstinacy of the disease is referable to recurrences. I come to this opinion partly because dermatologists have failed often to demonstrate fungus in the intervals between attacks, but chiefly on account of the ubiquity of the disease. That is, there are so many places where a new infection may be picked up that, given a predisposed person, it is a simple matter to explain entirely new infections.

It has been shown that fungus in cutaneous scales may remain viable for more than a year; under these circumstances a new infection may be picked up from the patient's shoes, slippers, bathroom rugs, and a host of other places. The problem of complete disinfection of the patient's environment is thus a painful one; even though he were to burn more or less expensive clothing and furnishings there would still remain places outside his own environment where infection could be picked up. The case appears hopeless as far as adequate hygiene is concerned.

TREATMENT

Treatment of dermatophytosis other than that on the toes is highly satisfactory. The application of parasiticide ointment in the case of the more sluggish lesions as a rule results in cure within a few weeks. Tar, chrysarobin and ammoniated mercury, but particularly salicylic acid, are effective. The latter may be employed as ointment in concentrations up to 8 per cent. Whitfield's ointment has a deservedly high reputation and consists essentially of salicylic acid, 3 per cent; benzoic acid, 5 per cent, and a proper proportion of petrolatum.

The treatment of the toes is a different matter. A small percentage of cases is cleared up more or less promptly and, apparently, permanently. Such cases are, however, in a very small minority. In those cases in which the infection has extended onto the dorsum of the foot, there is again a most satisfactory improvement, but only up to a certain point. Thus, the infection on the dorsum of the foot will clear up under the same treatment as that of eczema, but the infection between the toes will remain obdurate. The acute condition on the back of the foot may be treated with soothing lotions, such as phenol (carbolic acid) and lime water, saturated boric acid solution, or whitewash. Small doses of roentgen rays may be used as adjuvants, as in eczema. When the case resolves into, or if it originally appeared as, a disease between the toes, the best treatment in my opinion is Whitfield's ointment, as mentioned. Here paste (starch, 25 per cent; zinc oxide, 25 per cent; petrolatum, 50 per cent) may be substituted for petrolatum; it has the advantage of being stickier, and the grease dose not diffuse on the stocking as readily. In this case the old application must be completely removed every evening with olive oil or petrolatum before a new application is made; otherwise the residue will accumulate day by day and prevent the approach of the newly applied medicament to the hotbed of the disease. If a fair trial of Whitfield's ointment has failed, tincture of iodine may be cautiously applied; or perhaps it is better to begin half strength, in view of the notorious susceptibility of some persons' skins to iodine. Likewise, chrysarobin, 20 grains (1.3 Gm.) to the ounce of ointment, may be tried. Often the gamut of four or five different applications must be run before one is finally successful in clearing up the case. But, as has already been mentioned, there is a very large number of cases in which treatment of any sort is unavailing, and it is frequently wise to take the patient into one's confidence before instituting treatment for ringworm of the toes.

It is for these reasons that I have been looking about, in the laboratory, for an entirely new approach to the therapy of ringworm of the toes. But what I particularly desire is a form of treatment which not only will cure the current attack but also will prevent reinfection from the environment. This appears to be a rather large order—something which can with difficulty be expected of treatment by the use of drugs. At present I am testing out certain bacteria in the hope of establishing them between the toes and thereby crowding out or otherwise interfering with the development of ringworm fungi between the toes. The idea is somewhat similar to Metchnikoff's in arteriosclerosis and senility. I have also found in the laboratory that ringworm fungi do not withstand high temperatures—such high temperatures, for instance, as the skin can bear. There is a possibility that, by baking the feet, we may clear up current attacks which have resisted parasiticide application; but this treatment does not guarantee against recurrences.

SUMMARY

My aim in this paper has been to emphasize that:

1. There are many lesions on the skin which have in the past been regarded variously as eczema, psoriasis, lichen planus and other dermatoses, or which have not been diagnosed at all and which are mycotic. In view of the fact that fungous infection may take on such various forms, it is obligatory that in case of doubt scrapings be examined under the microscope. This is particularly incumbent on the practitioner because it is so readily performed. Anybody acquainted with the manipulation of a microscope can readily acquire the technic, and there is always an abundance of toe ringworm material available with which the physician can educate his eye. The physician should be particularly suspicious of dermatoses in intertriginous positions which he cannot explain on the basis of ordinary intertrigo, particularly if the intertrigo is multiple, affecting the toes, groins and axilla, for instance. In every case, therefore, in which an intertrigo is seen in one position, the other positions should be checked up. Examination of the toes should always be made in cases of tinea cruris or tinea axillaris. Patients, even physicians, almost invariably deny that there is anything the matter with the toes, and it becomes necessary for the physician to check up with his own eyes on the condition in such cases.

2. Yeasts are being urged more and more as causes of dermatophytosis; it remains to be seen whether they are all that they are represented to be.

3. The patient must not be promised too much in regard to the treatment of the condition when it occurs between the toes; relief may be promised with reservations when there is a secondary eczematoid extension on the dorsum of the foot. Salicylic acid still remains as the main drug in the treatment both of the toe and of other forms of dermatophytosis. Pruritus ani, it must be remembered, is sometimes caused by fungi, and scrapings from the part may settle the question.

OBSERVATIONS IN A CASE OF RENAL GLYCOSURIA, DURING AND AFTER PREGNANCY

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The condition existing in the patient whom we are about to describe is usually referred to in medical literature as renal glycosuria. In addition to this term, the literature contains several designations which have reference to the same symptom-complex. John [1] objects to the term renal glycosuria because "all glycosuria is renal in origin, depending upon the renal threshold as well as the glycemic level"; he suggests the term nondiabetic glycosuria. Umber and Rosenberg [2] speak of renal diabetes or glycosuria innocens. Cyclic renal glycosuria or cyclic glycosuria is a subgroup of renal glycosuria described by Jonas [3] and Faber.[4] Benign glycosuria is a group term including the glycosurias of nondiabetic origin.

The diagnosis of renal glycosuria may be made in cases in which there exists a chronic, nonprogressive, apparently harmless glycosuria without the symptoms of diabetes and without hyperglycemia in the fasting or postabsorptive states. The renal threshold for dextrose excretion is lower than normal; i. e., dextrose usually appears in the urine even when the blood sugar level is 0.08 per cent or lower. The glycosuria is not influenced in a relative quantitative way by food or fasting. The typical picture probably never changes to that of diabetes mellitus, but Joslin [5] stresses the need of conservatism in diagnosis and emphasizes the importance of prolonged observation before arriving at a diagnosis of renal glycosuria. Most authors agree that no dietary treatment is necessary.

Although numerous typical cases of renal glycosuria are reported, the condition is comparatively rare. Therefore it is not surprising that no case report can be found in which an individual showing this condition has been studied during pregnancy. Two of Crook's [6] patients may have had renal glycosuria, as sugar was still found in the urine ten and thirteen years after the pregnancies in which glycosuria was first discovered and the patients were still in good health, "certainly not diabetic"; there are no complete data, however, on which to found this diagnosis.

The condition existing in our patient is not to be confused with the transient glycosuria which often occurs during the time of pregnancy only and is spoken of as the "renal type" of glycosuria.[7]

REPORT OF CASE

History.—Mrs. F., aged 21, was seen, Feb. 3, 1925, because of sugar in the urine, and nausea and vomiting incident to pregnancy.

The family history was recorded as unimportant except for the fact that her father was known to have had a little sugar in the urine at times (subsequent investigations by one of us [H. M. B.] have revealed the facts that the patient's father has a very mild diabetes, two paternal uncles have renal glycosuria, in one, of the cyclic type, and one sister shows a marked postprandial glycosuria which has not been studied. The observations in this family have not been concluded; when complete, the data will furnish the material for a later report on familial glycosuria). There was no marked obesity in the family.

The patient had had the usual diseases of childhood. She had had measles at 18 without complications. During August, 1923, she had had a febrile illness of six weeks' duration diagnosed typhoid; during the third and fourth weeks the temperature had ranged around 104 F., and there had been a bloody diarrhea. She had a healthy child, born May 14, 1923, and weighing 6 pounds 4 ounces (2.8 Kg.); there had been constant nausea and vomiting throughout this pregnancy. The menstrual periods had been regular but she had not menstruated since Dec. 22, 1924. Her average weight had been 107 pounds (48.5 Kg.) dressed.

Sugar was first discovered in the patient's urine, Oct. 21, 1922, during the early weeks of her first pregnancy; all of ten subsequent urine examinations during this pregnancy had showed marked positive tests for sugar. Starvation for three days and restriction of diet had not rendered the urine sugar-free. Aug. 6, 1923, three months after confinement and three

TABLE 1.—*Respiration Experiments* *

	Respiratory Quotient	Calories per Hour	Rise in Calories per Hour	Calories per Square Meter per Hour	Rise Above Normal, per Cent	Calories from Carbohydrate and Fat per Cent	Calories from Carbohydrate, per Cent	Calories from Carbohydrate	Grams Carbohydrate Utilized: Total	Grams Carbohydrate Utilized: Increase	Blood Sugar, Mg. per 100 Cc.	Urine Sugar, Gm.
Basal	0.78	55.4	...	37.9	−2	47.1	26.3	12.3	3.0	...	78	+
79 Gm. dextrose 45 minutes after	0.87	62.2	6.8	42.6	16.5	52.8	57.5	30.3	7.6	4.6	133	3.5
1½ hours	0.78	59.7	4.3	40.9	11.0	50.7	26.3	13.4	3.3	.3	132	2.0
2½ hours	0.76	56	0.6	38.4	3.5	47.6	19.2	9.2	2.3	−.7	100	1.5

Dextrose administration	79.0 Gm.
Dextrose excreted	7.0 Gm.
	72.0 Gm.

Dextrose metabolized, 10.5 Gm., 14.6 per cent of total

* Technic as described by Boothby and Sandiford; Tissot gasometer and Haldane gas analysis apparatus. The results demonstrate normal utilization of dextrose.

1. John, H. J.: Nondiabetic Glycosuria, Endocrinology **10**: 115 (March-April) 1926.
2. Umber and Rosenberg: Ueber insulinrefraktäre Zuckerausscheidungen und Klassifikation des Diabetes auf Grund seines verhaltens gegenüber Insulin, Klin. Wchnschr. **4**: 583 (March 26) 1925.
3. Jonas, L.: Nondiabetic Glycosuria, M. Clin. N. Amer. **10**: 367 (Sept.) 1926.
4. Faber, K.: Benign Glycosuria as a Result of Disturbance in Blood Regulation, Ugesk. f. Læger, **88**: 731 (Aug. 12) 1926; abstr. J. A. M. A. **87**: 1784 (Nov. 20) 1926.
5. Joslin, E. P.: The Treatment of Diabetes Mellitus, ed. 3, Philadelphia, Lea & Febiger, 1923, p. 665.
6. Crook, A.: Incidence of Glycosuria During Pregnancy, Lancet **1**: 656 (March 28) 1925.
7. John, H. J.: Glycosuria and Pregnancy, Surg. Gynec. Obst. **42**: 543 (April) 1926.

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days later, the urine had contained much sugar. During the third and fourth weeks of the attack of typhoid, which had occurred a few days later, urine specimens had shown sugar on three days; a fourth specimen had been sugar-free. Subsequent to this illness, no urine examinations had been made and there had not been any restriction of diet. She had never experienced any of the symptoms of diabetes.

Physical Examination.—The patient's height was 5 feet 2 inches (157.5 cm.), and her weight was 101 pounds (45.8 Kg.). The examination did not reveal any physical abnormalities. There was suggestive evidence of early pregnancy.

A casual specimen of urine passed one and one-half hours after a meal contained 4.7 per cent sugar and no diacetic acid. The following morning the fasting blood sugar taken before breakfast was 0.087 per cent, and a specimen of urine collected

TABLE 2.—*Daily Dextrose Excretion in Grams During the Period of the Author's Observations*

Date	Sugar in 24 Hour Urine: Reduction per Cent	Sugar in 24 Hour Urine: Total Grams	Fasting Blood Sugar, per Cent	Comment
2/ 4/25	3.3	s.s.	0.087	Weight, 106 pounds, dressed; last menstrual period, 12/23/24
2/ 5/25	4.2	49	.....	
2/ 6/25	+++	s.s.	0.078	Respiration studies
3/12/25	2.8	47	.....	Two meals daily, no restrictions
4/ 1/25	2.9	49	.....	
5/ 9/25	1.5	25	.....	
5/22/25	2.7	39	.....	
6/13/25	1.9	32	.....	
7/16/25	3.2	58	.....	
7/31/25	2.0	34	.....	Weight, 116 pounds, dressed
8/21/25	3.1	45	.....	
9/ 3/25	1.4	20	.....	
9/20/25	...	..	.....	Liquid diet; baby born; weight, 7 pounds
9/21/25	...	..	.....	Baby to breast; soft diet
9/22/25	1.2	15	.....	No fever
9/23/25	0.8	8	.....	
9/24/25	0.1	0.9	.....	Light diet
9/25/25	0	0	.....	
9/26/25	1.0	7.2	.....	
9/27/25	0.5	5.1	.....	Urine fermented with yeast; filtrate does not reduce
9/28/25	0.4	4.5	.....	
9/29/25	0.6	8.2	.....	
10/ 1/25	0.3	2.8	.....	
10/ 2/25	0.7	6.7	.....	
10/28/25	0.6	7.9	.....	General diet, no breakfast; two meals daily
2/18/26	1.9	16	.....	Rubner test positive for dextrose
3/31/23	1.9	23	.....	
4/19/26	1.9	23	.....	
5/12/26	1.7	20	.....	
6/14/26	2.5	24	.....	Nursing baby thrice daily
7/28/26	1.6	27	.....	Nursing baby once daily
8/26/26	1.7	29	.....	Baby weaned during July
9/13/26	2.2	26	.....	
10/ 5/26	2.2	21	.....	
11/28/26	2.6	37	.....	Weight, 103 pounds, dressed; ate heavily of sweets
12/ 6/26	1.6	s.s.	0.078	
3/26/27	1.6	27	.....	
5/28/27	+++	s.s.	0.094	Weight, 106 pounds, dressed

at the same time showed 3.3 per cent of sugar. The blood Wassermann reaction was negative. The reducing substance in the urine was shown to be dextrose by Rubner's test, fermentation with yeast and dextrorotation in the polariscope. March 6, 1925, respiration studies were carried out by Paullin[8] with the results shown in table 1, taken from his report.

Course.—Table 2 shows the course of the glycosuria during pregnancy, the puerperium, the nursing period and since weaning the baby. During the first six months of pregnancy there was marked nausea and vomiting; during the first three months, twenty-seven ampules of corpus luteum were given hypodermically with slight relief. After the onset of pregnancy and up to the present time, no breakfast has been eaten.

A study of table 2 reveals the fact that the dextrose excretion throughout pregnancy tended to be greater than subsequently. During the puerperium the glycosuria was much less, increasing somewhat during the early nursing period and approaching the present level as the baby was gradually given fewer breast feedings.

8. Paullin, J. E.: Glucose Utilization in Renal Glycosuria, Arch. Int. Med. **37**: 88 (Jan.) 1926.

COMMENT

We were very much interested in the observation that following delivery there was a rapid decrease in glycosuria until the urine was sugar free on the sixth day of the puerperium; this was followed by a very gradual increase in the degree of glycosuria. We held the opinion that this phenomenon resulted from the increased demand for dextrose to be utilized in the formation of lactose. This opinion is supported by the following observations: Nitzescu[9] showed that the lactose content of the milk from lactating sheep diminishes rapidly with starvation; following intravenous injections of dextrose, the lactose content returns rapidly to the normal level. Commandeur and Porcher[10] amputated the breasts of two goats which later became pregnant and did not show sugar in the urine during pregnancy; for two days immediately following the delivery of normal young, the urine of both goats contained large quantities of a reducing substance which was proved to be dextrose. Macleod[11] reports his observations on a depancreatized, diabetic, insulin treated dog, in which, about sixteen hours after the birth of the last of six pups, the mother displayed marked hypoglycemic symptoms accompanied by a blood sugar of 0.067 per cent; previous to and following this occurrence there had been hyperglycemia with the same diet and insulin dosage. Parsons, Randall and Wilder[12] observed a pregnant woman who became sugar-free without insulin during the puerperium while receiving the same diet which had required an insulin dosage of 35 or 40 units during the two preceding years.

Throughout pregnancy, the puerperium and the nursing period, numerous examinations of the urinary reducing substance were made in an attempt to discover whether there might be a simultaneous appearance of lactose. After complete fermentation of the urine specimen with yeast, the filtrate never caused reduction of Benedict's solution. An attempt at inversion with dilute acid and heat did not produce any change in the percentage of sugar or in the degree of polariscopic rotation. Rubner's test always gave the red reaction for dextrose.

The two children of this patient, both males, have shown fairly normal development except for the fact that the second child shows a mild degree of rickets. Nov. 29, 1926, observations were made on the height and weight of both children. The older, aged 3 years 6½ months, was 38½ inches (97.7 cm.) in height and weighed 36 pounds 10 ounces (16.6 Kg.); on two out of four occasions, the urine has shown a trace of reducing substance with Benedict's solution. The younger, aged 14 months, was 30½ inches (77.4 cm.) in height and weighed 23 pounds 12 ounces (10.8 Kg.); one specimen of urine did not show any sugar.

SUMMARY

In a case of renal glycosuria in which the known duration of the glycosuria was four years, eight months, there have been two successful pregnancies and an attack of typhoid. In urine examinations made on fifty-five days, the urine was found sugar free on only

9. Nitzescu, L. L.: Action des sucres en injections intraveineuses sur la secretion du lait: Origines du lactose, Compt. rend. Soc. de biol. **93**: 1319 (Nov. 27) 1925.
10. Commandeur and Porcher: Recherches sur les sucres urinaires chez la femme enceinte, en couche et nourrice, Arch. gén. d. méd. **194**: 2241, 1904.
11. Macleod, J. J. R.: Carbohydrate Metabolism and Insulin, New York, Longmans, Green & Co., 1926, p. 83.
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two occasions: during typhoid, and on the sixth day of the puerperium of the second pregnancy. The variations in the degree of glycosuria during the second pregnancy, puerperium and nursing period are of special interest.

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THE EFFECT OF CARBON ARC IRRADIATION ON THE HEALTH OF A GROUP OF INFANTS *

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In a recent communication we [1] reported the results of a study of a group of infants irradiated during the winter months by means of the mercury vapor lamp. The object of the investigation was to determine primarily whether ultraviolet radiations diminished the occurrence of respiratory infection. It was shown that in spite of systematic exposures to these rays the incidence of these diseases was not altered.

It is thought that the frequency of respiratory infections during the winter is due in part to a deficiency of sunlight. The mercury vapor lamp emits an exceptionally large intensity of invisible or ultraviolet rays as compared to the sun, which produces only 1 per cent of these radiations. It is evident, therefore, that the rays of the mercury vapor lamp are by no means the counterpart of those of the sun. It is quite possible, as Hess [2] has suggested, that there is some virtue in the solar spectrum considered as a whole and that the value of the ultraviolet radiations may be affected by the presence of the longer rays. The rays of the carbon arc lamp more closely approximate those of the sun. We therefore thought it worth while to repeat our study of the previous year, using a lamp fitted with white flame carbons, the radiations of which resemble most nearly those of the sun.[3]

One of our infant wards was selected for this investigation. The study was limited to infants because they are much more prone to respiratory infections than older children. The infant ward in question is very large and well ventilated. The distance between beds is maintained at 3 feet. During the entire study, the personnel was unchanged. We selected nineteen infants and separated them into two groups, one to be irradiated and the other not to be irradiated, the former consisting of nine and the latter of ten infants. The ages, weights and heights of both groups corresponded closely, so that results were comparable. The dietary was the same: vegetables, cereals, cod liver oil and orange juice were given in addition to adequate quantities of pasteurized milk. The nonirradiated infants were not in the ward during the period of irradiation, in order to avoid any possibility of contact with the rays of the carbon arc lamp.

The present investigation was not confined only to the effect of irradiation on respiratory infections, but its scope was enlarged to include the influence on the hematopoietic and lymphatic systems as well as on the general nutrition.

To facilitate interpretation the study was subdivided into three periods, two of irradiation totaling three months, and one subsequent period comprising one and one-half months. Prior to the investigation a complete physical examination was carried out which included notations of the height, weight, hemoglobin percentage (Dare) and the number of erythrocytes and leukocytes of the blood. Similar examinations were made at intervals of six weeks throughout the study (tables 1 and 2).

TECHNIC

A four arc Wohl lamp weighing about 75 pounds and having a length of 3 feet, a width of 2 feet and a depth of 9 inches was especially constructed for this study. The rear and two sides were protected with spark screens, the front screen being removable to permit the insertion of new carbons. The lamp was supported on a stand which could be adjusted to a height varying from 2 to 4 feet. With this lamp the light irradiated to all sides, thus enabling the treatment of a group of infants simultaneously. The lamp was operated on 220 volts at 25 amperes.

TABLE 1.—*Clinical Data of Infants Treated for a Period of Months with Carbon Arc Irradiation*

Case	Age, Months	Weight, Pounds	Height, Inches	Hemoglobin, per Cent	Cervical Glands	Spleen	Liver	Infection
Preliminary Examination								
1	10	19	28½	68	+	0	1F	...
2	6	13½	23¾	75	+	2F	2F	...
3	5	11¾	24	65	0	0	0	...
4	8	15¼	24¾	48	+	2½F	1F	...
5	13½	29¾	28	70	0	0	0	...
6	9	17	28	65	+	0	1½F	...
7	10½	19¼	27¼	65	+	0	1F	...
8	8	17¼	27¾	68	+	0	0	...
9	11½	18¾	27¼	73	0	0	0	...
First Period (0 to 1½ Months) Irradiation								
1	11½	19¾	29½	70	+	0	1F	+
2	7½	15¼	25	65	+	1½F	2F	+*
3	6½	13¾	25	64	0	0	0	+
4	9½	15¾	24¼	55	0	2F	2½F	+
5	15	21¾	29½	65	0	0	0	+*
6	10½	18½	....	75	+	0	2F	+
7	12	20¼	27¾	60	+	0	0	+
8	9½	19¼	29	64	+	0	0	+*
9	13	19¾	28½	69	+	0	0	+
Second Period (1½ to 3 Months) Irradiation								
1	13	20½	30½	52	+	0	0	0
2	9	15¾	27	62	0	1F	2F	0
3	8	14¾	27	63	0	0	0	...
4	11	15¾	29¼	50	+	2F	2F	+
5	10½	24¾	30¾	60	0	0	0	0
6	12	19¼	30	58	+	0	1F	+
7	13½	21¾	29	60	0	0	0	0
8	11	19¾	29½	65	0	0	1F	0
9	14½	20¼	28¾	68	+	0	0	0
Subsequent Period (3 to 4½ Months) Nonirradiation								
1	14½	20	30½	..	+	0	2F	0
2	10½	15½	27	45	+	2F	2F	+*
3	9½	16	27	65	0	0	0	0
4	12½	17½	27½	59	+	1F	2F	0
5	....	....	....	..	..	..	..	..
6	13½	20	30	65	+	1F	2F	+
7	15	21¾	29¾	60	+	0	0	0
8	12½	21½	30	54	+	0	1F	0
9	16	21	29	65	0	0	0	0

* Multiple infections.

Four naked infants were arranged in their bassinettes about the carbon arc lamp at a distance of 2 feet from the source of irradiation. The eyes were protected with ordinary gauze bandages. The infants were exposed to the rays for a period of thirty minutes. At the end of the first fifteen minutes they were turned, so that almost the entire surface of the body received an equal irradiation. This procedure was repeated every other day from December 15 to March 15. The total expo-

* From the Home for Hebrew Infants, service of Dr. Alfred F. Hess.

1. Barenberg, L. H.; Friedman, Irving; and Green, David: The Effect of Ultraviolet Irradiation on the Health of a Group of Infants, J. A. M. A. **87**: 1114-1117 (Oct. 2) 1926.
2. Hess, A. F.: The Ultraviolet Rays of the Sun, J. A. M. A. **84**: 1033-1037 (April 4) 1925.
3. Schwartz, R. P.: Carbon Arc Radiation, J. A. M. A. **88**: 632-634 (Feb. 26) 1927.

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sure to the rays amounted to twenty-two and one-half hours. It was not necessary as in the case of the mercury vapor lamp to begin with short exposures, on account of the mild intensity of the short irritating rays of the carbon arc lamp. An erythema developed in most of the infants during the exposure to the rays

TABLE 2.—*Clinical Data of Infants Not Treated with Carbon Arc Irradiation*

Case	Age, Months	Weight, Pounds	Height, Inches	Hemoglobin, per Cent	Cervical Glands	Spleen	Liver	Infection
Preliminary Examination								
1	7½	15¼	26	62	+	1F	2F	...
2	9	18	27½	72	+	0	0	...
3	5	15½	25½	73	0	0	2F	...
4	7½	14	25	46	+	2F	2F	...
5	6	13½	29	73	+	0	1F	...
6	4½	13¾	25½	82	+	0	1F	...
7	11	23½	28½	63	0	0	0	...
8	14	22½	29½	73	+	0	0	...
9	11½	16¾	28¼	74	0	0	0	...
10	8	17¼	26¾	75	0	0	2F	...
First Period, 0 to 1½ Months								
1	9	17½	27½	68	+	1F	1F	+
2	10½	18	28½	45	+	0	0	+
3	6½	17	27¼	55	+	0	2F	+*
4	9	15½	...	35	+	2F	2F	+
5	7½	17	27	70	+	0	1F	+
6	6	15½	27½	74	+	0	1F	+
7	12½	22½	29¼	55	0	0	0	0
8	15½	23½	30¼	60	0	0	0	+*
9	13	18¼	28¾	75	+	0	0	+
10	9½	19	27¾	60	0	0	1F	+*
Second Period, 1½ to 3 Months								
1	10½	18	29½	53	0	0	0	+
2	12	20½	29	55	+	0	0	0
3	8	17¾	28	55	0	0	2F	+
4	10½	16½	27½	35	+	2F	2F	+
5	9	17¾	28½	60	+	0	0	0
6	7½	16¾	27½	70	+	0	1F	0
7	14	23½	30	60	0	0	0	0
8	17	28½	31	70	0	0	1F	0
9	14½	18¾	29½	55	+	0	0	+
10	11	21	28	55	+	0	0	+
Subsequent Period, 3 to 4½ Months								
1	12	17	29	69	+	0	0	+
2	13½	21¾	30¾	65	+	0	0	0
3	9½	21	29½	70	+	1F	2F	0
4	12	17	27½	43	+	2F	2F	0
5	10½	18½	28½	60	+	0	0	0
6	9	18	28	70	+	0	2F	0
7	15½	26	31	61	0	0	0	0
8	18½	24	31	68	0	0	0	0
9	16	22	29	70	+	0	2F	0
10	12	19	31	63	+	0	0	0

* Multiple infections.

and lasted for about eight hours. No burns occurred, and the pigmentation of the skin was somewhat disappointing. It is interesting to note in connection with this investigation that the infants tanned remarkably on exposures to the sun during the period subsequent to irradiation and that the pigmentation was of a different hue.

As stated, the total exposures to the rays was twenty-two and one-half hours, so that there can be little doubt that the infants received sufficient irradiation. In this connection it is interesting to note that one of the infants prior to irradiation had marked rickets and that complete healing was noted on the roentgenogram after ten exposures.

A glance at table 3 shows that, in spite of these systematic exposures to the carbon arc rays, the incidence and frequency of respiratory infections were not influenced. In fact, the irradiated group had infections somewhat more often than the others. In this respect the result coincided with that obtained with the mercury vapor lamp last year. It is evident, therefore, that artificial irradiation from these two sources cannot be depended on to reduce the incidence of respiratory infections and curb the high morbidity that occurs during the winter months.

It is true that the spectrum of the carbon arc approximates closely that of the sun; yet we know that even slight variations in intensity at various levels are sufficient to bring about different physiologic results. It is therefore fallacious to make broad comparisons between two sources of light, for however they may resemble each other there may nevertheless be essential distinctions in their action on the cells or fluid of the human body. For instance, Hess [2] showed that a difference of less than twenty millionths of a millimeter in wavelengths determined whether ultraviolet radiations were specific or inert in relation to their action in rickets. It is possible, therefore, that certain solar rays which may have value in the prevention of infection are not sufficiently represented in the spectrum of the carbon arc lamp.

Eidinow [4] found that artificial irradiation caused an increase in the bactericidal power of the blood, and that the degree of this "response" depended on the size of the area of the skin exposed. When too large a surface was treated, no increase in the bactericidal power resulted; in fact, a diminution came about in some instances. We do not believe that our results suffered from the fact that the infants were overirradiated. Furthermore, in a recent report, Hill and Clark [5] have shown that ultraviolet radiation did not increase the resistance of white rats to infection.

It seems quite possible, indeed probable, that the various meteorological conditions which are associated with the increased intensity of the solar rays in the spring may well account for the beneficent effect of irradiation at that time as compared with irradiation carried out indoors in the course of the winter.

The effect of repeated irradiation on the blood cells has not been sufficiently studied. Gutstein [6] found that erythrocytes and hemoglobin were not influenced by systematic exposure to the ultraviolet rays of the mercury vapor lamp, whereas a definite increase of lymphocytes with a corresponding diminution of the polymorphonuclear leukocytes was observed. According to Bauman [7] there was an increase of the polymorphonuclear leukocytes followed quickly by a relative and absolute increase of the lymphocytes. The lymphocytosis persisted throughout the period of irradiation. It is clear that there is no unanimity of opinion on this aspect of the subject.

TABLE 3.—*Relation of Irradiation to Respiratory Infections*

Number of Children	Irradiation: Period I (0 to 1½ Months) Infections: Total Incidence	Irradiation: Period I (0 to 1½ Months) Infections: Duration, Days	Irradiation: Period II (1½ to 3 Months) Infections: Total Incidence	Irradiation: Period II (1½ to 3 Months) Infections: Duration, Days	Postirradiation (3 to 4½ Months) Infections: Total Incidence	Postirradiation (3 to 4½ Months) Infections: Duration, Days
Nine irradiated	15	5½	3	1½	4	9½
Ten nonirradiated	11	5	4	3	0	0

The study of the blood in our infants revealed that at the end of the first period of irradiation the hemoglobin percentage practically remained unchanged in the irradiated group, whereas in the nonirradiated group a drop of 12 per cent was noted. At the end

4. Eidinow, Albert: A Note on Dosage in Phototherapy, Lancet **2**: 645-648 (Sept. 25) 1926.
5. Hill, C. M., and Clark, J. H.: Effect of Ultraviolet Radiation on Resistance, Am. J. Hyg. **7**: 448-462 (July) 1927.
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of the second period a fall of hemoglobin was observed among the infants comprising the irradiated group but not among those which did not receive irradiation. On account of the repeated infections and the limited number of infants, no definite conclusions can be drawn, although the maintenance of the level of hemoglobin throughout the first period of irradiation suggests the possibility of a stimulating effect of the rays. In the previous study with the mercury vapor lamp, no similar influence on the hemoglobin was observed.

The number of erythrocytes and leukocytes was not affected by irradiation. At the end of the first period, the percentage of polymorphonuclear cells in the irradiated group rose from 20 to 33 per cent. This increase was observed also at the end of the second period, 35 per cent in the irradiated as compared to 22 per cent in the nonirradiated. In the period subsequent to irradiation, the polymorphonuclear cells fell to 26 per cent. It may be noted that there was less infection in the irradiated than in the nonirradiated group during the second period, so that the increase of polymorphonuclear cells cannot be attributed to infection. We believe that it was due to the irradiation.

TABLE 4.—*Effect of Irradiation on Growth in Height (Average)*

	Preirradiation Period	Irradiation Periods				Postirradiation Period (3 to 4½ Months)	
		I (0 to 1½ Months)		II (1½ to 3 Months)			
Number of Children	Age, Mo.	Height, In.	Growth, In.	Height, In.	Growth, In.	Height, In.	Growth, In.
Nine irradiated.....	9	26.5	27.7	1.2	28.5	0.8	29	0.5
Ten nonirradiated.....	8½	26.4	27.3	0.9	28.8	1.5	29.4	0.6

Springer and Tardieu [8] studied the relation of ultraviolet irradiation to the growth of rabbits. They confined them in a cellar and found that those which received irradiation thrived normally, whereas those which were not exposed to the mercury vapor lamp failed to grow in weight and height.

The effect of the irradiation on the growth in height and weight of the infants was interesting (tables 4 and 5). At the end of the first period, the growth was greater in the irradiated group, which is all the more remarkable because of the more frequent infections among these infants. During the second and subsequent periods, the growth both in height and in weight was less among the irradiated group.

These results coincide with those obtained last year with the mercury vapor lamp and may be explained as due to an initial stimulating effect of the rays on the infant. This benefit was followed by a depressing action of the rays which persisted throughout the subsequent period. Hess [9] has warned of the dangers of overirradiation. It must be remembered that the use of artificial irradiation must be regarded as the administration of a powerful therapeutic procedure and that therefore an overdosage may be harmful.

As is well known, lymphatic tissue is highly susceptible to the action of radiant energy. A large thymus or a lymph node with malignant involvement has been known to become small following one exposure to roentgen rays. Jolly [10] has exposed the dissected thymus of the guinea-pig as well as the popliteal lymph nodes of the young rabbit to the mercury vapor lamp for thirty minutes at a distance of 12 cm. After several hours of irradiation, microscopic sections revealed superficial necrosis, about 5 mm. in thickness, a lesion which could not be produced by the longer rays.

Enlargement of the cervical glands was observed in 60 per cent of the infants prior to the investigation. Exposures to the rays failed to diminish the size of those nodes, and as far as we could observe there was no infection in the pharyngeal region which could account for their presence at the onset or their persistence at the conclusion of our study. In fact, we noted the development of enlargement of the cervical glands in the course of irradiation. The failure on the part of the rays is obviously due to the limitation of their penetrating power. It is possible that the failure to diminish the spleen, liver, tonsils or adenoids can be ascribed to the same superficial effect of ultraviolet rays.

CONCLUSION

In spite of systematic exposures to the radiations of the carbon arc lamp, no comparative diminution in the incidence of respiratory infections was noted in a series of infants treated for a period of three months.

Growth in weight and in height during the first six weeks was greater in the irradiated than in the nonirradiated group of infants. During the second six weeks, however, growth was less among the irradiated infants. These results coincide with those obtained last year with the mercury vapor lamp. The number of erythrocytes and leukocytes did not seem to be affected by irradiation. An increased percentage of polymorphonuclear cells was observed among those of the irradiated group during the first and second periods. The hemoglobin percentage of the irradiated group was maintained during the first period, whereas a fall of 12 per cent was noted in the nonirradiated group. Irradiation apparently had no influence on the size of the spleen, liver, tonsils, adenoids or cervical glands. In spite of repeated exposures to the rays of the carbon arc lamp, the pigmentation of the skin was slight, in contrast to the marked tanning which resulted from subsequent exposure of only a few days to the sun.

TABLE 5.—*Effect of Irradiation on Growth in Weight (Average)*

	Preirradiation Period	Irradiation Periods				Postirradiation Period (3 to 4½ Months)	
		I (0 to 1½ Months)		II (1½ to 3 Months)			
Number of Children	Age, Mo.	Weight, Lb.	Gain, Lb.	Weight, Lb.	Gain, Lb.	Weight, Lb.	Gain, Lb.
Nine irradiated.....	9	17	18.9	1.9	19.2	0.3	0.4	19.6
Ten nonirradiated.....	8	17.2	18.7	1.5	19.6	0.9	0.8	20.4

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8. Springer, M., and Tardieu, A.: De l'action des rayons ultra-violets sur la croissance, Bull. Acad. de méd. Paris **95**: 394-398 (April 20) 1926.
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10. Jolly, J.: Action des rayons ultra-violets sur le tissu lymphoide, Compt. rend. Soc. de biol. **93**: 999-1002 (Oct. 30) 1925.

Medicine and Science.—The scientific worker is not confined to laboratories; it is the spirit and not the place that makes the scientific man. Every practitioner of medicine may be, and should be, a scientific man doing just as much to advance knowledge as any worker in a laboratory. In fact, it is the man in practice who so often starts the hare, finds the problem to be solved, and the credit of the hunt is his, although he may call on his physiologic and pathologic colleagues to help him in the chase.—Paton, D. N.: *Edinburgh M. J.* **35**:6 (Jan.) 1928.

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REGURGITATION OF ENDOMETRIAL TISSUE THROUGH FALLOPIAN TUBE DURING OPERATIVE PROCEDURES

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The etiology of endometriosis has caused more speculation during the past few years than any other gynecologic condition. The origin of these heterotopic growths of endometrium becomes more important each day as an increasing number of reports reveal that they are quite a common lesion in the female pelvis and occur usually during the reproductive age.

Sampson [1] recently reported observations based on 257 cases occurring in his private practice during the past four years. This author [2] states that evidence of misplaced endometrial tissue can be demonstrated in from 10 to 20 per cent of women between the age of 30 years and the menopause who come for the operative relief of gynecologic conditions.

The most widely accepted theory is that advanced by Sampson [3] of the regurgitation of tubal and uterine epithelium through the fallopian tubes into the free pelvic cavity. He was able to demonstrate [4] these epithelial cells and bits of free lying epithelium and stroma identical with that found in the uterus in blood collected from the fimbriated ends of the tubes during laparotomy. In eight out of fourteen cases in which the laparotomy had been preceded by a dilation and curettage, smears taken from the tubal extremity revealed epithelial cells. He has also found carcinoma cells in the tubal lumen following diagnostic curettage for carcinoma of the body of the uterus.

Novak [5] has questioned whether a piece of endometrial tissue could be regurgitated through the minute, often tortuous interstitial portion of the tube or whether it could pass to the pelvic cavity against the ciliated current of the tubal epithelium. He feels rather that the ectopic endometrium found lying free in the tubal lumen or at the tubal fimbria consists of cast off bits from intrapelvic endometriomas or cancer that are being propelled toward the uterine cavity, and that these endometrial islands are primarily the result of a metaplasia of the tissue arising from the embryonic coelomic epithelium.

Cron [6] has more recently shown that the endometrium cast off during the menstrual period can be grown on appropriate mediums. He was not able to demonstrate, however, an increase in the mass which he felt might be due to too low a cellular concentration. The reports of Heaney,[7] Danforth,[8] Lemon and Mahle [9] and many others would indicate that this cellular concentration is not such an important factor but that some as yet unknown condition will allow the growth of rather minute particles of endometrial tissue in points distant from the uterus.

Geist and Goldberger have measured and visualized with the roentgen ray the interstitial portion of the fallopian tube. They [10] found that the lumen varied from 0.5 to 1 mm. in diameter. These experiments, however, were carried out on the extirpated uterus, and it seems probable that the lumen would be somewhat larger than this or at least more distensible in its usual uncontracted state.

Ectopic endometrial transplants are quite frequently associated with conditions that might increase intra-uterine pressure and consequent regurgitation. Davis and Cron [11] have reported a case which seemed to indicate quite definitely that an increase in intra-uterine pressure may force bits of endometrium backward through the tube to become implanted on the pelvic peritoneum.

In my operative work I often precede laparotomy by dilation and curettage alone or combined with a tubal patency test. The dilation of the cervix is accomplished with Hegar's solid dilators. It occurred to me that I had an excellent opportunity to recheck some of Sampson's observations and demonstrate to my own satisfaction that endometrial tissue could be forced backward through the tubes into the pelvic cavity during the ordinary gynecologic operation.

In these patients, as soon as the abdomen was opened, the fimbriated end of both tubes was smeared across a glass slide before any other manipulation was carried out in the pelvis. In a series of sixteen cases, twelve revealed macroscopic blood, and in one additional patient a few blood cells were found on microscopic examination.

The slides were allowed to dry at room temperature and then were stained with the ordinary eosin-hematoxylin stain. In six of these slides clumps of cell débris and areas of definite epithelial cells could be found. In a recent case in which dilation and curettage preceded the laparotomy for correction of a retroversion of the uterus, a piece of tissue appeared on the slide about 3 mm. in diameter. A careful search was made for endometrial transplants in the pelvis of this patient but none were found. Operation was performed midway between menstrual periods. In order to be sure of preserving the structure of this tissue, it was embedded and sectioned. It proved to be a piece of normal endometrium very similar to that which one might obtain on curettage. The gland spaces were rather widely dilated and contained a pink staining coagulum and many white blood corpuscles. The stroma was quite edematous and also contained many leukocytes. If staining properties are an index of the viability of tissue, this would seem to be a nidus which, if implanted under proper conditions, might have the possibility of future growth.

Jacobson,[12] in his experiments on rabbits and monkeys, concludes that there is an increased viability of endometrium during estrus. He feels that if endometrium is implanted on intra-abdominal structures that have been prepared by injury or irritation for the reception of ectopic cells, they will grow and probably reproduce their kind.

It may be concluded, then, that in view of the clinical and experimental evidence any operative procedure that increases intra-uterine pressure may displace endometrium into the peritoneal cavity.

1. Sampson, J. A.: Am. J. Obst. & Gynec. **12**: 459 (Oct.) 1926.
2. Sampson, J. A.: Intestinal Adenomas of Endometrial Type, Arch. Surg. **5**: 217 (Sept.) 1922.
3. Sampson, J. A.: Am. J. Obst. & Gynec. **4**: 451 (Nov.) 1922.
4. Sampson, J. A.: Surg. Gynec. Obst. **38**: 287 (March) 1924.
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Under proper conditions, endometrium that has been displaced may continue to grow and produce clinical symptoms which often require surgical intervention.

Until the conditions necessary for implantation and growth are more fully understood, uterine manipulation should be done with extreme care and every effort should be made to evaluate the various factors in their order of importance.

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THE DIAGNOSIS AND RESULTS OF SURGICAL TREATMENT OF MALIGNANT GOITER *

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The excuse for presenting so small a series of cases is found in the absence of mortality in dealing with a condition in which a high death rate usually has been reported, and the long duration of cure in several cases. With the exception of recent publications from the Mayo Clinic, only small series of cases by individual operators or collections from the literature have been published. Wilson [1] attributes this to the reluctance to report cases in which the diagnosis has usually been incorrect and the treatment futile. This seems unfortunate, for there are many controverted questions concerning all points in this important subject, and reports of experience and further discussion should help.

IMPORTANCE AND FREQUENCY

Malignancy is not only the most difficult problem but one of the greatest causes of mortality in goiter surgery. Probably death results in at least 50 per cent of the cases of malignant goiter, while with benign goiter it is a fraction of 1 per cent in the hands of experienced operators. The frequency of occurrence in all cases of goiter is variously estimated; Balfour [2] gives 1.19 per cent; De Courcy,[3] 1.75 per cent; Speese and Brown,[4] 4.6 per cent, and Simpson,[5] 4 per cent. If the smallest figure is accepted, there would be at least as great a mortality with the malignant as with the benign cases, while with the larger figures there is 2 per cent or more mortality from the total number of goiters, even when the relatively low frequency is considered. This is about four times the mortality from goiter surgery as a whole, except in the hands of occasional operators.

WHAT GOITERS ARE MALIGNANT

Numerous writers have called attention to the fact that apparently simple colloid goiter, of microscopic structure that generally remains harmless for years, may give metastasis of a malignant character. Ewing [6] states that this was first described by Cohnheim, who found the structure of colloid goiter in both primary and secondary tumors, and he mentions such reports by eight other writers. Delannoy and Dhalluin [7] report such a case from the clinic of Professor Lambret of Lille and give a review of the entire literature, especially complete from French sources, up to November, 1921. They consider the biologic and clinical character of growths the most important criteria of malignancy and also call attention to the frequent penetration of vessel walls. Seventy-one cases had been reported in the surgical literature up to the time their paper was written. In these supposedly benign growths with metastasis usually only a small piece of the tumor had been examined, and they believe that such fragments frequently fail to contain the localized focus of malignancy. It is not generally practicable to examine an entire specimen histologically, but serial sections covering different parts frequently show malignancy as in their case. They consider metastasizing goiter always malignant even if the small latent focus is overlooked. They propose the name "cancers thyroidiens latents à metastases" for such growths and emphasize the importance of examining the thyroid in all malignant growths of bone suspected of being metastatic. Graham, [8] in discussing this subject, states that a diagnosis can be made with confidence from cell and tissue morphology in only 30 to 40 per cent of cases; in the remaining cases, the microscopic appearance of the tissue cannot be relied on. "Malignancy depends upon the tendency or capacity of the tumor to invade locally, cause local destruction, recur after operation, give distant metastasis and finally to result in the death of the patient."

DIAGNOSIS

Early diagnosis is the most important consideration, as in malignant conditions of all parts of the body. The need for differentiation from other pathologic conditions or new growths in the neck is extremely rare. The diagnosis of benign from malignant goiter is called for almost daily in clinics where many goiters are seen and frequently offers great difficulties. Questions such as the following constantly arise: Can the large, relatively symptomless goiter which has been carried for from twenty to forty years without trouble, but which has recently begun to increase in size, be safely left? Is the hardness of the longstanding growth in the neck of a man who has recently lost many pounds, the result of calcareous infiltration or an inoperable malignant condition? Does the insignificant-looking, hard little nodule in the neck of the young woman warrant opera-

Summary of Observations

	Malignant %	Benign %
Age Incidence		
To 20 years	5	12
20 to 30 years	10	32
30 to 40 years	25	21
40 to 50 years	15	15
50 to 60 years	35	11
60 years and over	10	9
Sex	About 1 male to 4 females	About 1 male to 8 females
Loss of weight	Only 1 (5%) lost over 20 pounds	10% lost 30 pounds or more (mostly toxic cases)
	32 patients lost 40 pounds or more	
Duration (since first observed)	14 over 5 years 8 over 10 years 5 over 20 years	
Mobility:	Malignant	Benign
Free	25%	30%
Some limitation	25%	40%
Fixed	50%	24%

* Read before the Section on Surgery, General and Abdominal, at the Seventy-Eighth Annual Session of the American Medical Association, Washington, D. C., May 20, 1927.

1. Wilson, L. B.: Cancer of the Thyroid, Ann. Surg. **74:** 129 (Aug.) 1921.
2. Balfour: Collected Papers of the Mayo Clinic **10:** 374, 1918.
3. De Courcy, J. L.: Malignant Tumor of the Thyroid, Ann. Surg. **80:** 551 (Oct.) 1924.
4. Speese, J., and Brown, H. P., Jr.: Ann. Surg. **74:** 684 (Dec.) 1921.
5. Simpson, B. T.: Surg. Gynec. Obst. **28:** 153 (Feb.) 1919.
6. Ewing: Neoplastic Disease, ed. 2, Philadelphia, W. B. Saunders Company, 1922, p. 903.
7. Delannoy, E., and Dhalluin, A.: Arch. franco-belges de chir. **25:** 1047 (Sept.-Dec.) 1922.
8. Graham, Allen: Surg. Gynec. Obst. **39:** 781 (Dec.) 1924.

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tion? These and similar questions are being asked not only of the family physicians but of the staff members of our teaching hospitals, and the answer is not always easy nor is the correct answer always given. As practically all data concerning the diagnosis of malignant goiter are also common to benign growths, it has seemed that a comparison of the relative frequency of the symptoms and pertinent facts in the clinical history of the benign and malignant groups might be helpful. Most writers have given their attention to the differential diagnosis from other pathologic conditions in the neck, but the diagnosis between benign and malignant goiter is nearly always more difficult and far more frequently needed. For convenience in calculating percentages, 1,000 unselected cases have been taken and compared with twenty malignant cases representing the approximate proportion in my recent experience, or 2 per cent. This is only a small number selected from more than 5,000 cases observed in the last twenty-four years, the first small series having been reported in 1907,[9] but it represents recent and better operative methods. It seems unlikely that this indicates the relative proportion between benign and malignant cases, for probably only a small proportion of patients with goiter consult the surgeon; but it does perhaps represent about the proportion seen by the average surgeon in this country.

AGE

The relation of age to malignancy in my experience is shown in the accompanying table. While the highest percentage is found in individuals over 50 years of age, as is agreed by practically all writers on this subject, the number of patients between 20 and 40 years of age seems to be increasing. Formerly, I should have agreed with Crotti [10] that malignant degeneration occurs mostly between the ages of 40 and 60; but during the last six years more than a third of the cases occurring among my patients have been in individuals under 40 years of age. This may be the result of keener diagnosis, but statistics of the American Society for the Control of Cancer show definitely increasing frequency. Small growths occurring in patients of about 30 years or younger have especially interested me recently. These have been so small as to seem scarcely worth considering, but as they had the characteristics of a malignant growth, being fixed, hard and nodular, and in one instance causing hoarseness, they were excised and were reported as malignant by experienced pathologists. This is a much higher percentage of malignancy among young persons than has been reported by most writers, although definite figures have not usually been given. Wilson reports a preponderance in the fifth decade; Crotti mostly from 40 to 60 years, and Müller and Speese,[11] in the fourth, fifth and sixth decades. Bouman [12] gives a table of 290 cases showing twenty-four under 30 years of age. Operation in young patients with small growths is so free from risk that early excision seems advisable in all doubtful cases.

SEX

Women are much more frequently affected with goiter of all types, the number ranging in our yearly tabulation from one man to seven women to one man to ten women, the average being about one to eight. The total number of malignant goiters is also greater in women, but the proportion from an equal number would be almost exactly twice as many men with malignant goiters as women. As shown in the table, the proportion is one man to eight women in benign cases and one man to four women in malignant cases, indicating that of an equal number of goitrous men and women the men are about twice as likely to develop a malignant condition. This is a higher proportion of malignancy than the experience of most others, Balfour [2] reporting 65 to 35; Wilson,[1] 69 to 31; Müller and Speese,[11] 60 to 40, and Delore [13] 4 to 1. It seems possible that the greater relative frequency in men has not been sufficiently emphasized.

GENERAL MANIFESTATIONS

Weight.—Rapid loss of weight occurring in a patient with a previously symptomless goiter and accompanied by other symptoms is always suggestive of malignancy; however, the loss of weight in hyperthyroidism is very much greater than in malignant conditions. In none of my malignant cases has there been loss of weight of more than 50 pounds (23 Kg.), and in only one more than 20 pounds (9 Kg.), while among 756 hyperthyroid cases in which the data were recently tabulated there were fifteen in which there was more than 50 pounds loss of weight. Not infrequently there are instances of fleshy individuals who have lost 75 pounds (34 Kg.) or more. Only one patient with a malignant goiter had lost more than 20 pounds, while 10 per cent of those with benign goiter had lost 20 pounds and thirty-two patients had lost more than 40 pounds (18 Kg.).

Fixation of the Growth.—This is more than twice as common by percentage in malignant as in benign cases, although deeply located, benign growths, and especially those that have been treated by injection or by roentgen-ray, are sometimes quite immovable.

Hard Growths.—Taken as a whole, hard growths are 30 per cent more common in malignant cases, but the incidence of calcareous infiltration is at least five times greater than that of malignancy and calcareous infiltration gives a hard growth which in most instances is indistinguishable from malignancy before operation, unless other symptoms are present. In the patients with hard nodules from calcareous infiltration and loss of weight from hyperthyroidism it is difficult to differentiate the condition from malignancy, but the roentgen ray makes the diagnosis clear in most cases. Thick walled cysts and hard adenomatous nodules in some cases are difficult to distinguish from malignant growths. Chronic thyroiditis is also difficult or impossible of differentiation from malignancy in certain cases. Kraus [14] states that the differential diagnosis in such cases is most difficult.

Difficult Respiration.—This is mentioned by most writers as an important symptom of malignancy, but in my experience it is approximately as common in benign as in malignant growths. It is so frequently caused by hard nodules pressing on the trachea, and especially by deeply located and intrathoracic growths, that I have found this symptom of itself of little help.

Difficult Swallowing.—This condition is twice as common in malignant as in benign cases, and is frequently one of the earliest indications of malignancy. It seems to be a much more significant symptom than difficult respiration. Pressure of the growth is not always the cause, for in several of my cases the growth was small and not located so as to give pressure. Klose and Hell-

9. Tinker, M. B.: Am. J. M. Sc., April, 1907.
10. Crotti: Thyroid and Thymus, Philadelphia, Lea & Febiger, 1918.
11. Müller and Speese: Univ. Pennsylvania M. Bull. **19:** 74, 1906.
12. Bouman, H. A. H.: Minnesota Med. **3:** 105 (March) 1920.
13. Delore, quoted by Craver, L. F.: Ann. Surg. **82:** 837 (Dec.) 1925.
14. Kraus, F.: Med. Klin. **20:** 523 (April) 1924.

wig [15] believe that it is caused by an attachment to the esophagus. Stenosis of the esophageal (or tracheal) lumen has been found to be rare, and bougies may be readily passed, as noticed by Kraus.[14]

Hoarseness.—It is a well known fact that paralysis of one vocal cord with goiter is relatively common. De Quervain [16] places the incidence at about 31 per thousand. But this does not nearly always cause hoarseness. If hoarseness develops, with small, fixed, hard, nodular growths, it is quite suggestive. In this series it is 10 per cent more frequent in malignant than in benign cases. Early hoarseness has also been noted by Balfour and a number of others.

Local and Referred Pain.—Such pain is approximately equally common in benign and malignant cases. It has not seemed to me of great diagnostic value, although it is emphasized by Kraus.

Immediate Results.—There has not been any immediate operative mortality in this series although frequently the operations have been long and difficult because of extensive adhesions and involvement of closely related, important organs. Freedom from heavy mortality has been obtained by abandoning any attempt at radical excision as soon as it was evident that the great vessel sheath, trachea or esophagus was infiltrated by the growth. The common carotid artery was resected in only one case of carotid gland tumor involving the thyroid by extension. In almost all cases it was possible to remove the great bulk of the growth, leaving a thin strip where important structures were infiltrated to be taken care of by postoperative radium treatment. Two of my patients who have lived longest (ten and fourteen years) following the primary operation have been treated in this way, and several others are living and apparently well for shorter periods. Extensive secondary operation for metastasis to the lymphatic glands of the neck was performed in two patients; radium was used postoperatively in both, and both survived the secondary operation. One lived seven years, dying from causes unknown to the physician who referred him to me; the other patient is living and well six years after operation. Of twenty patients, all but one, who was given radium treatment only, were operated on. All patients but two were living one year following operation, but in a high percentage the condition will doubtless eventually recur. Three other patients were under observation, all with metastatic growths which seemed too hopeless to justify treatment; these patients died within three months of the time first observed.

POSTOPERATIVE RADIUM TREATMENT

The results of postoperative radium treatment have been extremely encouraging in a number of instances. Infiltration of the great vessel sheath, the trachea and the esophagus was found in at least four instances. These patients were given radium treatment as soon as possible after operation, and they have lived, one fourteen years, one eight years, and two three years. It seems certain that this would not have been possible without the use of radium. Radium alone gave an apparent cure in a case considered hopelessly inoperable in which the patient died from other causes three and one-half years later.

It seems doubtful whether radium alone would prove as efficient in cases of extensive involvement as when the bulk of the growth is excised and radium later applied. In many instances, too, there is no suspicion of malignancy until the operation is well under way, or when the report of the microscopic examination is received. It should do no harm in experienced hands and its use after operation is advised in all cases. In my cases there has not been any permanent recovery following the use of the roentgen ray combined with surgery, although several patients have been treated by competent roentgenologists: the use of radium in inexperienced hands has been equally unavailing. There is still much difference of opinion as to the permanent value of radium and a good many unconvincing papers have appeared; but careful and conservative reports, such as that of Craver [17] from the Memorial Hospital, are certainly highly encouraging.

PERMANENT RESULTS

Eight patients have been well three or more years after operation; four, five or more years, and three, six years afterward. One patient is living and well fourteen years after operation. One lived ten years and died from an unknown cause. It seems highly improbable that most of these patients would have lived three or more years without operation, and even if the cure is not permanent the extra years of life are frequently very valuable, particularly when the patient is the mother of a family of small children.

CONCLUSIONS

1. Malignant goiter hardly seems to deserve so pessimistic a prognosis as has been given by some writers. Even with lymphatic gland involvement or extensive infiltration of surrounding important structures, the patients may survive for many years, while with early operation the results compare favorably with many other forms of malignancy.

2. Thyroid growths in young adults, so small that some have not been thought worthy of serious consideration, if fixed, hard, nodular and of rapid growth and especially if there is beginning hoarseness and obstructive symptoms, have proved malignant in more than half the cases in which the growths were excised.

3. Extensive operations do not seem justified when the favorable results of radium following partial excision are considered. Too radical surgery undoubtedly accounts for the high death rate reported by most writers. The postoperative use of radium in experienced hands has given some remarkably good results: the roentgen ray and radium in inexperienced hands have proved of little value.

4. Most of the usual symptoms and signs of malignancy may be present in benign goiters, and an early, positive diagnosis is usually impossible. With an incidence of malignancy in all goiters of at least 2 to 4 per cent, and high mortality, while thyroidectomy under favorable conditions has extremely low mortality, there can be little doubt that earlier operation in doubtful cases would mean still greater improvement in results.

404 Savings Bank Building.

[EDITORIAL NOTE.—This paper, together with that by Dr. Else, entitled Regeneration of the Thyroid Gland and the Prevention of Recurrent Goiters, published in the issue of December 24, constitutes a symposium on the Surgery of Goiter. The discussion followed the paper by Dr. Else.]

15. Klose, H., and Hellwig, A.: Klin. Wchnschr. **1**: 1687 (Aug. 19) 1922.
16. De Quervain: Goiter, New York, William Wood & Co., 1922.
17. Craver, L. F.: Ann. Surg. **82**: 833 (Dec.) 1925.

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RELIEF OF CONGENITAL AND TRAUMATIC INCONTINENCE OF URINE BY OPERATION

REPORT OF SIX CASES *

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Incontinence of urine is such a social and economic handicap that the sufferer is indeed an object of distress. This paper suggests a new procedure by which a young woman, who had suffered from incontinence since birth, was entirely relieved of her difficulty and has assumed the normal activities of the ordinary girl of her age for the first time in her life.

Two widely different cases of congenital incontinence in men have also been cured by operation. One occurring in a young man who had suffered from incontinence since birth was due to spina bifida and the other was a case of complete epispadias with incontinence. In addition, three cases of incontinence due to traumatism were successfully treated by applying the same principle.

RECENT OPERATIVE ATTEMPTS TO RELIEVE URINARY INCONTINENCE

Reports of surgical procedures undertaken to relieve incontinence of urine which have appeared during the past two years are characterized not so much by originality as by more intelligent and successful application of methods which were originated several years ago. Gammeltoft [1] in Denmark and Baidin [2] in France have made use of the technic described by Goebell and Stoeckel as far back as 1910. It was thought that many cases of incontinence arose because of insufficiency of the function of the urethrotrigonal muscle, and that by "revivifying" this muscle incontinence could be abolished. The method is especially applicable to females who suffer incontinence after pelvic operations or difficult labor. Baidin reports that although in one of his patients the anterior wall of the urethra was much deteriorated and showed a urethrovestibular fistula, partial continence had been achieved, though as soon as the woman lay on her back, she once more lost control of urination. Gammeltoft used the pyramidalis or rectus muscle to make a ring around the urethra, and restored control of the urinary function to a multipara who had lost it after an operation for cystocele.

In our country, an ingenious variation on this technic is that of Deming,[3] who transplanted the gracilis muscle in a young woman who had congenital epispadias and who had undergone several unsuccessful surgical interventions previously. The procedure consisted of carrying an incision downward from the pubic spine over the middle of the thigh, the deep fascia of which was then opened and the muscle traced downward well toward the knee. The muscle has a double nerve supply and can easily be freed together with its vessels, so it is desirable to get as long a muscle belly as possible, and to incise it between two areas of nerve supply. A catheter is inserted into the urethra and the proximal portion of the muscle is wrapped around it and sutured back on itself, being finally fastened to the undersurface of the pubic arch with 00 chromic catgut. Daily bladder irrigations of 1:10,000 potassium permanganate solution were given, and the wound was painted twice daily with 1 per cent mercurochrome-220 soluble. At the end of three weeks, the patient could walk without any loss of control, and by dint of exercises and patience she eventually became able to walk for two hours, and to dance and indulge in all the forms of exercise from which she had always been debarred, control being practically perfect.

Urinary incontinence in women has received a great deal of attention from H. D. Furniss,[4] who recently made a report on the operative procedures which he is in the habit of employing to correct such causes of urinary leakage as fistulas, sphincter relaxation and aberrant ureters. Ureteral fistulas may be to the skin; the ureters very frequently open into the vagina and very rarely into the bowel. Operations on the ureter are sometimes followed by fistulas, and the condition is sometimes seen after labor or as result of extension from carcinoma of the cervix. When due to clamping or too extensive dissection with subsequent necrosis, leakage is likely to be through the skin or vagina. An unusual type of fistula is that following a nephroureterectomy, in which urine escapes from the bladder through the stump of the ureter, and thence by a sinus tract to the abdomen or vagina. For the correction of a ureteral fistula two procedures may be considered: ureterovesical anastomosis and nephrectomy. Nephrectomy is the better procedure if there is marked renal injury, infection, and hydro-ureter or hydronephrosis, or in cases in which the upper segment of the ureter is far distant from the bladder, and in which there is marked exudate into the pelvis. No attempt should be made to reach the field through the vagina, as this would constitute nothing more than an anastomosis between the sinus tract and the bladder, which would be sure to become infected even if the leak were temporarily stopped, and the kidney would certainly have to be removed later on.

An extravesical opening of the ureter, of which Furniss has seen two of the thirty cases reported, may cause incontinence by opening into the urethra or vagina. Treatment of such cases varies with the individual condition. In cases in which a goodly amount of renal tissue is drained by a supernumerary ureter, and in which there is good function and no infection, ureterovesical anastomosis will give good results, an extraperitoneal operation being preferable. When conditions are similar to these but very little renal tissue is drained by the extra ureter, a simple ligation will be satisfactory. If the ureter and pelvis are dilated, infected or of little functional value resection will be the best procedure, and in Furniss's experience the great majority of cases come into this last class.

Vesicovaginal fistulas are often complicated by urethral sphincter relaxation or urethral fistula. General principles of the operative treatment of these sinuses are: Good exposure of the field; if the vagina is too small the necessary enlargement may be secured through a pararectal incision on one or both sides. The tissues should be so mobilized that the fistula edges may be approximated without tension. Relaxation of

* From the Department of Urology, James Buchanan Brady Foundation, of the New York Hospital.
* Read before the Section on Urology at the Seventy-Eighth Annual Session of the American Medical Association, Washington, D. C., May 20, 1927.

1. Gammeltoft, S. A.: Incontinence Treated by the Goebell-Stoeckell Operation, Hospitalstid. **69:** 169 (Feb. 25) 1926.
2. Baidin, A.: Intervention dan les cas d'activité insuffisante du sphincter uerthro-trigonal, Compt. rend. Soc. de. biol. **94:** 603 (March 12) 1926.
3. Deming, C. L.: Transplantation of the Gracilis Muscle for Incontinence of Urine, J. A. M. A. **86:** 882 (March 20) 1927.
4. Furniss, H. D.: Urinary Incontinence in Women, S. Clin. N. Amer. **5:** 249 (Feb.) 1925.

the vesical sphincter is, in my experience, the most frequent cause of incontinence in women. Kelly's operation has proved an almost sure cure for cases of moderate degree. In some women it has been possible to tighten the sphincter through a suprapubic incision, a procedure which should be reserved for those cases in which the Kelly operation cannot be done; that is, those in which there are very small vaginas, senile atrophy and excessive scar tissue around the base of the bladder.

In the male, one of the frequent causes of urinary incontinence for which surgeons have sought a method of relief is that following perineal prostatectomy.

Keyes [5] last year described a procedure which was successful in restoring control to a man of 70 who had suffered complete incontinence for a year following perineal prostatectomy. The perineum was opened in the old scar line and the rectum separated from the urethra, a search being instituted for some fibers of the

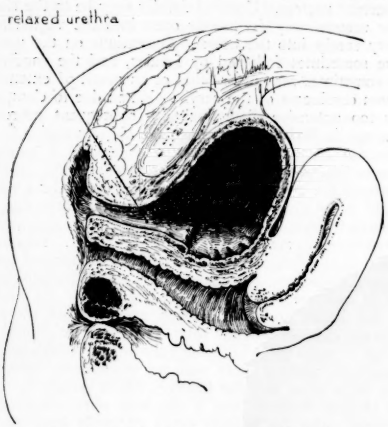

FIG. 1.—Sagittal view of the bladder and urethra of a young woman who had suffered from incontinence since birth.

external urethral sphincter. None were found, however, the only muscles to be seen being the cut and scarred posterior end of the bulbocavernosus, the edge of the intact levator ani on each side, and the rectum behind. In order to bring pressure on the urethra, an attempt was made to suture the two levators together with the posterior part of the bulbocavernosus. Three interrupted sutures of chromic catgut drew the three muscles together and made a muscular bed, the bulbocavernosus holding the two levators forward snugly under the membranous urethra, on which the natural tension of the levators gave an upward tug. The sling thus formed closed the dripping urethra, and the patient's condition slowly but steadily improved, so that at the end of the year he was able to hold the urine half a day, and rose only twice at night. Eventually he was able to sleep through the entire night, and there was absolutely no leakage at any time.

Correction of the so-called essential incontinence of urine was accomplished by Delbet and Léri,[6] two French urologists, in a number of cases in which spina bifida was demonstrated by roentgen-ray examination. Cutting down on the cleft in the spine, they found a fibrous band compressing the dural culdesac, the cauda equina and the adjacent nerves. Resection and removal of this band in nearly all cases relieved the incontinence. The operation is a delicate one, and is described in great detail. In some cases, several compressing bands were found. One serious feature of this procedure is that the scar resulting from the intervention may in its turn exert compression, thus causing a return of the previous incontinent condition. In the cases that relapsed, this was apparently the cause of failure Out of twenty-four patients, however, they had only three who were not benefited by the operation, and even these three did not wet themselves so often at night, and were in many respects better off than if nothing had been done for them. These authors report only three complete cures. It seems probable to them that the anomalous condition of spina bifida may very likely be accompanied in these individuals by other anomalies, and that it may be that in some cases the incontinence may have another basis than the compression of the cords and nerves. They are hopeful, however, that with improvements in technic a higher percentage of cures may be obtained in the future.

5. Keyes, E. L.: Operation for Incontinence of Urine Following Perineal Prostatectomy, Surg. Gynec. Obst. **42**: 423 (March) 1926.

6. Delbet, Pierre; and Léri, A.: L'incontinence dite "essentielle" d'urine: Pathogenic et traitment chirurgical, Rev. de chir. **63**: 483, 1925.

REPORT OF CASES

The following operations resulted in the successful cure of congenital incontinence of urine in a young woman, a man and a boy:

CASE 1.—Miss V. S., aged 28, admitted to the New York Hospital, March 3, 1925, with an irrelevant family history and a personal history of the usual diseases of childhood, and of regular painless menstruation of a twenty-eight day cycle and four day duration, had never been able to control the urine. She did not lose so much urine while sitting except when she coughed, sneezed or laughed heartily, and during the first week following menstruation she had a little better control. The control when she was lying down was slightly better, but when she slept she never had any control. She had been treated by various physicians with vaginal tampons, catheterization and irrigation, and in 1912 she had had a vaginal operation for falling of the uterus, at which time sutures were placed in some location about the urethra in the hope of relieving the incontinence, all to no avail.

The patient was well developed and well nourished, with several red moles of a seedy nature resembling an orange peel in appearance in various locations over the body. There were no palpable glands; the rectal examination was negative, and the urethra had no muscular tone, as the forefinger could be inserted easily into the bladder without meeting resistance.

An operation for relief of the incontinence was performed under sacral, parasacral anesthesia, which was entirely satisfactory for this operation, 1 per cent procaine hydrochloride without epinephrine being the medium employed. Suprapubic block was employed for the first operation. The operation was performed in two stages at the same sitting. The first operation was a suprapubic cystostomy. Suction with the double tube for bladder drainage was employed, so that the urine was kept from passing over the cut surfaces of the operative wound below. A V shaped incision was cut out of the bladder neck at the first operation and there was much bleeding.

The patient made an uneventful recovery and was discharged from the hospital, April 13, with the wound healed and able to control the urine for two and one-half hours.

She was readmitted to the hospital, June 8, as her control had been greatly reduced and the sphincter was somewhat relaxed.

The second operation was performed, June 8, another suprapubic cystostomy having been performed. The patient was placed in the exaggerated lithotomy position. A semicircular incision was made around the upper part of the urethral

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orifice and the entire upper and lateral surfaces of the urethra were dissected free from their attachments to the symphysis pubis and surrounding tissues. This dissection was carried back beyond the vesical orifice. The entire roof of the urethra

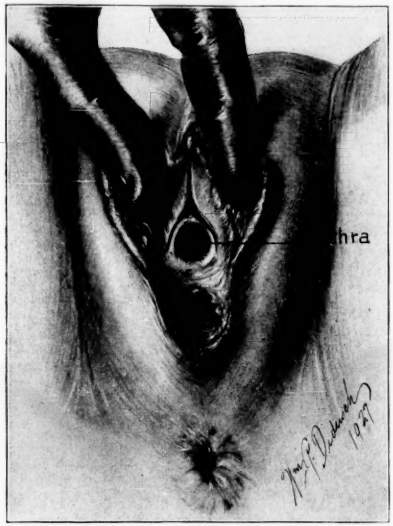

Fig. 2.—Repair of incontinence in woman: Incision is made around the upper hemisphere of the urethra and extended to the symphysis; the incision is then deepened and the upper surface of the urethra and the vesical orifice are exposed.

and an inverted V shaped portion of the vesical orifice were dissected away. The vesical orifice was then sewed tightly over a number 10 soft rubber baby catheter, as was also the entire urethra. The latter, when repaired, was stitched tightly to the periosteum of the under surfaces of the symphysis, the orifice being joined to the cut surfaces of the skin. The catheter was then removed and the patient immediately put on a suprapubic suction drainage, on which she remained for a period of three weeks. The suprapubic wound was then allowed to heal, and the patient passed urine through the proper channel in due time. A little exertion was necessary at first, but control has been excellent with no dribbling. The patient was seen, May 11, 1927 (two years after operation); she reported that she went through the entire night without urination or dribbling and that during the day evacuation of the bladder was necessary at intervals varying from two to five hours, depending on the amount of fluids ingested, exposure to cold and other influences which affect the secretion of urine.

CASE 2.—M. W., a white man, aged 21, single, was admitted to the New York Hospital, Feb. 9, 1925, complaining of incontinence which had bothered him all his life.

The family history was negative. At the age of 2, the patient had been operated on for spina bifida, and stated that he had suffered all his life from incontinence, being compelled to wear a urinal night and day in order to keep dry. Otherwise, his personal history was negative.

The patient was well nourished and presented a normal physical condition save for a crescent shaped scar over the sacrum which marked the site of former operation during childhood. The sacrum was irregular in outline and at the sacrococcygeal joint there was a nidus about one-half inch in depth, which did not show any evidence of infection. The penis was bleached as a result of continual recent saturation in urine. The meatus was red and inflamed; the scrotum and its contents were normal. Rectal examination revealed no resistance such as is usually noted when the external sphincter is penetrated.

On account of the abnormality of the sacrum, regional anesthesia was not used. Suprapubic operation was performed in accordance with the usual method. When the bladder was opened, incision was carried down into the posterior urethra, where a wedge shaped piece of tissue about one-half inch wide was resected. This included the internal sphincter, which was brought together by continuous catgut sutures around a number 10 F. catheter. A cigaret drain was placed in the space of Retzius and the bladder closed in the usual manner with a double suction tube, sutured at the highest point of the bladder wound. The abdominal wound was closed in layers, so that the tube passed obliquely through it, emerging at the highest point of the abdominal incision.

The patient's wounds healed kindly, and after a short period of convalescence he was able to return to his ordinary duties.

The patient was last seen, May 7, 1927, more than two years after operation. While up and around he could hold the urine for only one and one-half hours; while sitting he could retain the urine without dribbling for from three to five hours, and while lying down he was able to remain dry the entire night without losing any urine. On arising, however, he had to pass the urine promptly; otherwise he would dribble.

This young man had gained 40 pounds (18 Kg.), was successful in a business way, and had wooed and wed a beautiful young girl. In other words, he had changed from a smelly object of pity to a stalwart young benedick.

CASE 3.—J. L. C., a boy, aged 6, admitted to the New York Hospital, May 3, 1922, with complete epispadias and incontinence, had worn a diaper all his life as he soiled himself constantly. Otherwise the personal as well as the family history was negative. He was well nourished and in a normal physical condition save for enlarged tonsils and malformation of the penis. The testes and scrotum were normal. Examination of the genital condition made under ether showed a completely relaxed urethra. The corpora cavernosa were noted as a huge mass inferior to the urethra opening. The latter consisted of a funnel-shaped passage opening into the bladder. The foreskin consisted of a loose tab of skin lying

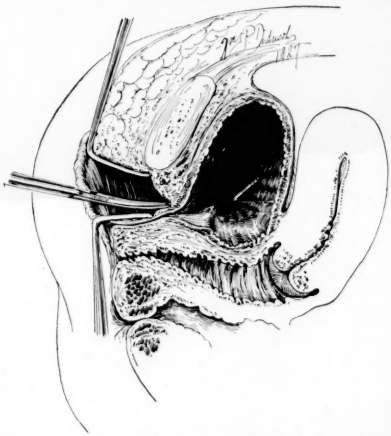

Fig. 3.—Sagittal view of the separation of the roof of the urethra from the surrounding structures.

underneath the corpora and without particular shape or form, being recognized on account of its consistency. Both testes were descended and present in the scrotum. There was no hernia.

The patient was operated on under general anesthesia, a suprapubic cystostomy being performed. The bladder contained a small amount of urine. Digital examination of the bladder neck through the cystostomy wound showed it to be markedly relaxed, presenting roughly a triangular form, and the tip of the index finger could be easily inserted into the orifice. The bladder was mobilized anteriorly and freed up

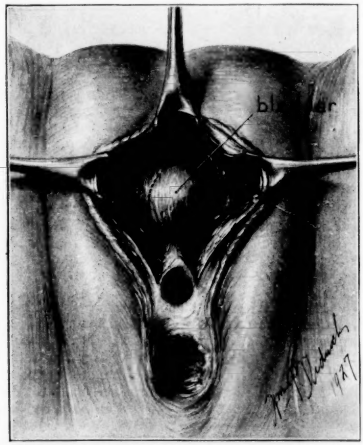

Fig. 4.—Repair of incontinence in woman: The entire roof of the urethra and vesical orifice are exposed; the dotted line marks the area to be excised.

to the symphysis. The bladder neck was divided superiorly, a wedge shaped piece being removed. Through and through sutures of chromic catgut were passed to tighten the internal sphincter around a small catheter. It was noted that the catheter could be withdrawn with difficulty, thereby indicating moderate constriction as a result of the procedure. The bladder was closed with suction tube drainage, and the patient returned to his room in good condition.

June 7, the patient was again operated on under general anesthesia to repair the congenital deformity of the penis. The suprapubic wound made at the previous operation was almost closed, and as the tube had not functioned satisfactorily following the previous operation, the cystostomy wound was enlarged and a tightly fitting tube sutured into the wound. The penis was then put on the stretch and the mucosa, which was represented by a long funnel shaped trough, the lower portion of which extended to the glans, was incised and blunt separation made between this mucosa and the tissues just inferior to the symphysis. This was stripped backward to a distance of 1½ inches until the external sphincter fibers, which were well defined, could be seen. These were tightened around the urethra in a crisscross fashion with sutures of plain catgut. A grooved director in the urethra during this procedure gave indication of the amount of tension and increased sphincteric action exerted by these sutures. The urethral mucosa on the lower aspect of the urethra was then separated at its most external portion from the underlying corpus cavernosum and denuded until the entire corpus could be picked up between the index finger and the thumb. Separation was partly accomplished on the opposite side, but at this point a moderate amount of union between the urethra and corpus was left intact in order to supply a vascularity to the newly formed urethra and urethral mucosa. The freed surface of the mucosa on the left side was then turned over a grooved director and united by sutures to the freed edge of the mucosa of the right side, forming a canal for the urethra. This closure was effected for a distance of 2 inches. The corpora were then united superiorly over the newly made urethra by a layer of sutures, and after this the skin was pulled around the entire mass and sutured. A small dead space at the root of the penis just inferior to the symphysis was closed by buried sutures of catgut. A catheter was then passed gently into the bladder and found to meet moderate resistance throughout the entire urethra. It was then removed. The entire wound was cleaned with alcohol and a wet alcohol dressing applied to the row of sutures. This was reinforced with an overlying dam of rubber tissue which was sealed to the skin by collodion.

Following this operation some of the stitches in the upper portion of the wound did not hold and the corpora cavernosa suppurated, as did also a small portion of urethral mucosa. July 24, the suction tube was removed from the bladder, which was allowed to close. The patient was able to pass urine through the urethra and to void voluntarily. On account of a cough which the patient developed following the anesthetic, it was thought best not to attempt to repair the broken down area at this time; he was allowed to go home for three or four months and instructed to return at a future date to have the repair made.

He returned, May 24, 1924, and under gas and ether the edges of the sinus which had formed were freshened, and the underlying tissues were separated and closed with plain catgut sutures.

An important observation in this case was that the end of the repaired urethra broke down three times and remained intact only at the fourth operation, at which time the glans penis was split entirely into two parts. Healing then took place with equal pressure exerted at all points of the repaired surface where formerly the unexcised semilunar shaped glans penis exerted sufficient pull on the repaired upper portion, which included the repaired urethral end, to cause the terminal portion to break down from the pressure exerted.

The boy was seen in May, 1925, three years after the operation. He was then able to retain the urine all night long and for three hours while sitting. He remained dry for only one and one-half hours while playing, however, and often he forgot to urinate, at which times he would wet his trousers.

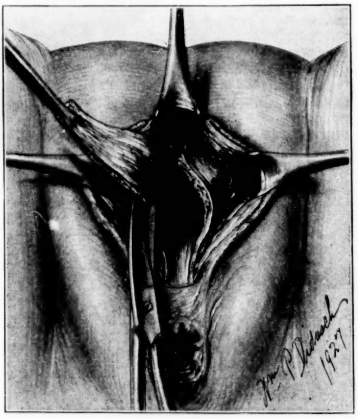

Fig. 5.—Excision of the urethral roof and a wedge shaped piece of the vesical orifice.

A letter received from his mother in April, 1927, stated that he had shown gradual improvement in every way and that, while his urinary control was not perfect, he was able to conduct himself as a normal boy of his age should without dribbling if he passed the urine at regular intervals. If, in romping with the other boys, he forgot to empty the bladder, he sometimes lost a few drops of urine in his trousers.

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These three cases deal with congenital incontinence from three entirely different causes all cured by applying the same general principle. Briefly expressed, the principle employed has been to narrow the natural sphincter areas to such a point that they function with the smallest amount of effort on the part of the patient

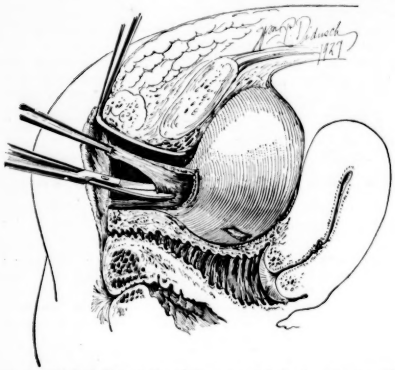

Fig. 6.—Sagittal view of the relations occupied by the excised urethral roof and vesical orifice.

and remain closed the rest of the time. The same principle has been applied to three cases of traumatic incontinence of urine as follows:

CASE 4.—R. J. C., a man, aged 70, was operated on for carcinoma of the prostate at the New York Hospital, June 18, 1918, by the perineal route after the method of Young. He recovered from the immediate effects of the operation and received several applications of radium. He developed complete incontinence of urine after this operation, which was a source of great annoyance to him. Nov. 20, 1919, he was operated on for the relief of this condition. Under general anesthesia the membranous urethra was exposed and dissected free. The entire floor of the urethra was excised, the cut edges being drawn together around a number 10 F. soft rubber catheter. Plain catgut was used in two suture layers. The patient made an uneventful recovery and was able to retain the urine for a period of about two hours. He lived for about two years after his operation in comparative comfort, ultimately dying from metastases. There was no recurrence of the carcinoma in the region of the prostate.

CASE 5.—Mrs. A. H., aged 20, came into the Brady Urological Foundation of the New York Hospital, Oct. 26, 1925, complaining of incontinence of urine, which had existed since confinement seven months previously.

The family history was negative, as was the personal history, save for one full term labor lasting thirty-three hours, which finally terminated in instrumental delivery. At the time of delivery the patient was badly lacerated, the degree unknown, but the laceration was repaired at the time of delivery and she remained in bed for three months. Following labor, the patient noticed that she could not control the urine, especially when standing or walking, and sometimes when sitting. There was, however, no lack of control when she was lying down. This condition had not been constant but rather irregular and periodic. She came to the hospital for surgical relief.

She was well nourished and in normal physical condition save for a relaxed pelvic outlet, lacerated cervix and a slight cystocele. The urethra showed a red meatus and a very much relaxed sphincter.

Operation was done under regional anesthesia, 1 per cent procaine hydrochloride being used. A suprapubic cystostomy was performed and a double suction tube sutured into the upper angle of the bladder for drainage. The patient was then placed in the lithotomy position. The urethra was carefully dissected, its roof being separated the entire length. The dissection was carried beyond the neck of the bladder. The roof of the urethra was then clipped away, starting at the meatus and cutting through into the internal vesical sphincter. This having been done, two plain catgut sutures were inserted through the internal sphincter muscle to tighten it, and the urethra was sewed over a number 9 catheter. The patient was returned to her bed in good condition. The suction tube was removed from the cystostomy wound on the twenty-third day and the bladder allowed to close.

About four days following the removal of the drainage tube from the bladder, the patient had a very good control of the urine, but on exertion would lose a few drops. Nov. 30, 1925, she was discharged from the hospital with the suprapubic wound completely healed and able to control the urine for from three to five hours. It was also necessary to repair a small vesicovaginal fistula. At present, this patient has excellent control of the urine. She can retain it well without difficulty for five hours while actively up and about.

CASE 6.—In G. L. B., a man, aged 53, admitted, Sept. 21, 1926, with enlargement of the prostate, a two stage perineal prostatectomy was performed and he was discharged, November 5. At this time, the family and past personal histories were negative. December 24, he was readmitted with a diagnosis of chronic cystitis, and discharged without operation, December 27. He was admitted for the third time, Feb. 28, 1927, because of incontinence of the urine. A suprapubic cystostomy was performed and the external sphincter repaired.

At the time of the first admission, because of an acute retention of thirty-six hours' duration, the patient gave a history of frequent and difficult urination, frequent catheterization, and three gonorrheal infections, resulting finally in acute retention. Physical examination was negative except for a marked purulent urethral discharge, apparently a staphylococcus infection.

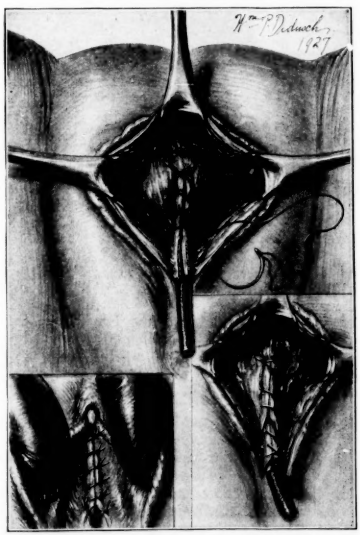

Fig. 7.—The top picture shows the repair by running suture of the vesical orifice and urethra over a small catheter. The right inset shows the complete urethral repair; the left inset shows the skin suture and the operation completed.

Rectal examination revealed enlargement of the prostate with a markedly distended bladder. Suprapubic cystostomy

was done. There was a domelike protrusion of the prostate in the bladder. After a suitable period of suprapubic drainage, the patient underwent a perineal prostatectomy and the prostate was removed in the usual way. The condition was found to be fibro-adenomatous hypertrophy of the prostate. The patient made a successful postoperative convalescence and was discharged from the hospital forty-two days after admission.

However, after leaving the hospital he returned every week for a long period. It was found that his control was lacking. Sounds and irrigations were of no apparent avail. He was constantly in much distress and always wet because the penis was so small that it would not fit properly into the rubber bag. There was constant saturation of the penis and scrotum. Finally, he developed an acute hydrocele. This subsided in a short time after the use of ice bags and suspensions, and he was admitted to the hospital and underwent a Young's[7] punch procedure. He was finally admitted to the hospital to relieve incontinence of urine.

Suprapubic cystostomy was done and the bladder was drained by suction drainage. At the same sitting a perineal procedure was done and the urethra was repaired by excision of the scar tissue and diminishing the size of the urethra by suturing the urethral edges around a small catheter. This number 12, soft rubber catheter was removed after operation, and sixteen days after operation a number 14 sound was passed with some difficulty.

After being discharged from the hospital, he returned weekly for observation and the passing of sounds, and on two occasions came in with acute retention. This condition was immediately relieved by the passage of a sound.

Results of Operation in Cases of Incontinence of Urine

Name and Date of Admission	Age	Diagnosis	Operations	Days in Hospital	Immediate Result	Final Result	Comment
Miss V. S. 3/3/25	28	Congenital incontinence of urine	Suprapubic cystostomy; repair of urethra and vesical orifice	40	Excellent	Retains urine all night and for as long as five hours during day	Has become an economic and social asset
Mr. M. W. 2/9/25	21	Congenital incontinence of urine and spina bifida	Suprapubic cystostomy and resection of wedge shaped piece of the vesical orifice	30	Excellent	Retains urine all night and for five hours while sitting; for one and one-half hours while walking	Has gained 40 pounds and is an economic success; has been married recently
Master J. L. C. 5/3/22	6	Complete epispadias and congenital incontinence of urine	Suprapubic cystostomy; excision of wedge shaped piece of the vesical orifice; repair of epispadias after the method of Young	90	Seven operations in all performed with ultimate success	Retains urine all night and for three hours while sitting; one and one-half hours while playing	Has grown a great deal and is improving gradually as he grows older
R. J. C. 11/19/19	70	Traumatic incontinence due to perineal prostatectomy	Excision of floor of membranous urethra and repair with resulting narrowness	12	Excellent	Had complete control until death two years later from metastases	Metastases did not occur at site of operation
G. L. B.	53	Traumatic incontinence due to perineal prostatectomy for adenomatous enlargement	Suprapubic cystostomy; excision of floor of membranous urethra and repair with resulting narrowing of urethra	16	Excellent	Control is excellent three months after operation	Patient reported to the hospital six weeks ago with complete retention which was relieved by passing a sound
Mrs. A. H. 10/26/25	20	Traumatic incontinence due to prolonged instrumental delivery	Suprapubic cystostomy; incision and repair of roof of urethra and vesical orifice	34	Excellent	Control excellent after repair of urethra, vesical orifice and a small vesicovaginal fistula	Patient considers herself entirely cured; can control urine for five hours while up and about

COMMENT

By referring to the accompanying table, it will be seen that these operations have been performed on persons of various ages and for incontinence from a variety of causes. The same general principle has been applied in all the cases. In the first place, it is considered essential to divert the urinary stream. This is best done by the use of a double suprapubic suction tube. By means of this effective device the wounds are all kept thoroughly dry, and no urine is allowed to pass over the repaired urethra. This is considered essential, as pressure of any sort and the presence of urine, especially if it is infected, are the two things which are most liable to cause necrosis of a urethral repair.

The principle involved in the actual reconstruction of the sphincteric portion of the urethra is to make it as small as possible, so that the muscles of that structure will have the greatest possible opportunity to become effective as a sphincter. Also it is considered that the surrounding muscular structures undoubtedly take part in the muscular control of the urinary channels in both males and females; therefore with the channel reduced in size, the minimum amount of exertion of muscular tone will aid in keeping it closed with resulting control.

The results of the six operations described fully justify my expectations, and this type of operation is therefore recommended in cases of incontinence either congenital or acquired.

32 East Sixty-Fifth Street.

ABSTRACT OF DISCUSSION

DR. R. E. CUMMING, Detroit: Dr. Lowsley reported two cases of congenital incontinence that was due to epispadias, and one case in a girl who had always been incontinent and in whom no physical defect was found. I wonder whether we all keep in mind the possibility of a perfectly normal incontinence of childhood, especially in the female, in association with such things as diseased tonsils or infection in various parts of the body, perhaps with an associated cystitis, lasting through adult life. In reviewing the cases of acquired incontinence which I have had to study, not having many in which I could prove congenital incontinence, I found that we could prove the existence of other congenital factors, such as syphilis and tabes dorsalis. Some years ago, Dr. Young of Boston reported an operation by which he brought about a reconstruction of a muscular urethra by means of mattress sutures, and I think that in Dr. Cabot's discussion of this paper he brought out, as Dr. Lowsley did, the importance of getting the urinary stream elsewhere than through the urethra during the period of convalescence. It seems to me this is the basic point on which the success of all such operations depends. We are indebted to Dr. Chute for calling attention to the importance of spina bifida occulta in these cases, particularly the indefinite ones. I recall twelve such cases which I cared for while in the army. It was a pitiful sight, as every morning the men had to line up and report whether their beds were wet the night before. We got a history of definite mental deficiency in some cases, which goes back to the persistence of incontinence of childhood. In one case the incontinence was purely acquired, secondary to exposure and an acute cystitis, followed by false incontinence. In three

7. Young, H. H.: An Operation for Cure of Incontinence Associated with Epispadias, J. Urol. **8**: 361-429 (Nov.) 1922.

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cases in which I thought operation was necessary because of loss of activity of the internal sphincter, I did part of the operation which Dr. Hugh Young devised and Dr. Lowsley mentions, namely, I denuded the trigon and created a false median bar. In all three instances this was successful for a year or longer. I then lost sight of the patients. I should like to try this operation in the female to see whether one could secure a good result in the pitiful cases such as the one mentioned of the woman who had to wear a napkin throughout life.

DR. D. K. ROSE, St. Louis: One of the things that seem to have been left out in this discussion so far is the fact that the nervous system is a cause in the production of incontinence. I have seen the same type in three generations, i. e., incontinence (day and night) in which the bladder pressure is low although the capacity is large. It is very difficult to do anything with such types. In the other type of precocious girls with incontinence at night, we find a normal capacity with a high pressure. In this type, treatment of maintained bladder pressure of 60 or 70 mm. of mercury for five minutes, two or three times a week, will be of great benefit. In the incontinence of tabes, one sees the results of destruction of the roots, or, in the meningovascular type, the result of irritation of the involved roots. In the meningovascular type affecting the low cord, there is an imbalance between the perisympathetic and the sympathetic and, as it is a nerve of sacral origin which controls the mechanism of emptying the bladder, if irritated, there is, in accordance with the degree, either frequency or incontinence. On the other hand, if the low cord is destroyed with the sympathetics in control, a paradoxical incontinence will eventually result. This does not develop to the fullest extent immediately but goes through a stage of bladder wall decompensation during which time we may have the same night loss and a somewhat similar frequency to that shown early in the meningovascular type. Spinal cord tumors, by their location, may cause various types of incontinence. Kyphosis of the spine, with irritation above the ninth dorsal, will, during a certain stage of its development, produce an automatic bladder in which the loss will usually approximate from 200 to 300 cc.

R. CAMPBELL BEGG, Wellington, N. Z.: It is a curious reflection, I think, that during the last fifteen months I have performed this operation in two cases with resultant cure. It is of particular interest to hear Dr. Lowsley refer to aberrant ureters emptying into the urethra, and to spina bifida. To my mind spina bifida occulta is a far more frequent cause of such a condition than we realize. A year ago I encountered one of the aberrant ureters. Knowing that cases had been reported and published in this country I looked up the literature and found eighty-six cases in which this observation had been made. Of the men who reported cases quite a large number have reported two. I have had two cases. They commonly open into the urethra and vestibule but not into the vagina. The ureter is carried down by the wolffian ducts. In these cases there is often a dilated ureter which runs up under the vagina, and I think that these are the cases reported in the literature as emptying into the vagina. In our whole literature in England, spina bifida occulta is unknown as the cause of all kinds of bladder dysfunctions. In England and New Zealand we are apt to give more attention to the other portions than to the spine, as depicted by roentgenograms, and by giving more attention to the spine I think that we shall get much assistance. One of my cases was in a youth who had been a bed-wetter for eighteen years. There was no abnormality of the urinary tract detected cystoscopically, but roentgen-ray examination disclosed a spina bifida occulta which could not be palpated. I do not think that it ever can be palpated, but stereoscopic plates will show it. In opening up we found a membrane passing across and obliterating the lowest part of the theca. He had six lumbar vertebrae, and from the last of these a fibrous membrane passed to the cauda equina 2 inches above the lower end of the theca. As is known, if one exposes the dura in this region, one gets the pulsation transmitted from the brain, and in this case the marked thing was that there was no pulsation in the theca. These nerves were not having their normal bathing in the fluid, but as soon as this membrane was released pulsation was reestablished. The patient was put back to bed, and at 3 o'clock that morning he called for a bottle, and he has never wet the bed again according to the last report. Dr. Rose spoke of the innervation of the bladder, but I think that we have not discussed that topic fully yet. To say that the action of the sympathetic opens the bladder and the parasympathetic does something else does not seem to cover the whole ground. In this particular case of nocturnal enuresis, with good retention during the day, it was obvious that the hypogastrics were not having their physiologic blood supply because the dura was tacked down; this produced a condition of excitability that caused occasional bedwetting during sleep when the pressure of the bladder caused tension. My experience with spina bifida occulta has been that it is distinct from spina bifida and has been passed over together with the fact that it can cause bladder and no other symptoms.

DR. O. S. LOWSLEY, New York: One patient with spina bifida had been operated on when he was 2 years old by

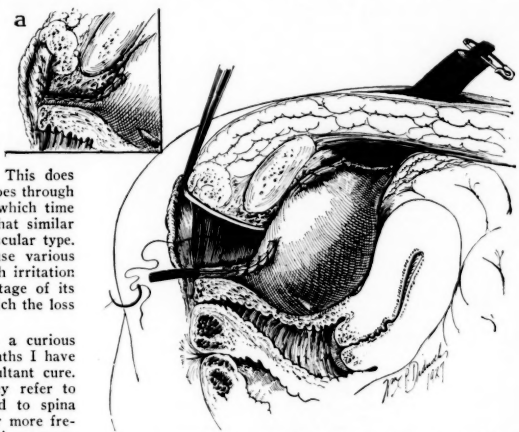

Fig. 8.—Sagittal view of the double suction drainage tube in place at the summit of the bladder for the purpose of diverting the urinary stream. The partial repair of the vesical orifice and urethra is shown. Inset *a* is a sagittal view of the repaired urethra attached to the under surface of the symphysis pubis and of the external repair. It will be noted that the vaginal surface of the urethra is never disturbed; therefore there is no possible chance for the vaginal wall to become injured or the site of a urethrovaginal fistula.

Dr. George Woolsey, who removed the mass. I saw him when he was 21. He had had incontinence all the time. One case was a complete epispadias with incontinence, such as Dr. Young several years ago reported and for which he devised his magnificent operation. The third case was apparently without any cause that we could find. The question of spina bifida occulta should not be overlooked. In the navy we had a list of bed-wetters, and I found that a large majority of them were suffering from posterior urethral irritation, apparently produced by irritation of the prostate, because these lads had to sleep on their backs for the first time in their lives since one cannot sleep anywhere else in a hammock. This was apparently due to congestion of the prostate with the posterior urethra, and they were cured by treatment of the prostate and the posterior urethra. I was interested in Dr. Rose's description of the influence of the nervous system on these conditions, a most interesting and important consideration which should not be overlooked. It is always a question what to do with these cases. Dr. Stevens of New York years ago recommended doing nothing unless the congestion of the bladder was so great that intervention was

demanded. I believe that Dr. Plaggemeyer recommended that in the cases of cord disease the proper thing to do was to allow the bladder to overflow. That is usually a good thing to do, and very often the cases that seem to be moderately advanced with tabes will be cured with antisyphilitic treatment. That seems to be the first thing to try. It was very important to all of us to have Mr. Begg call our attention to the cases of spina bifida occulta, and we will certainly be on the lookout for them.

ENTEROCOCCUS PERITONITIS

REPORT OF CASE IN A CHILD *

LEON DeVEL, M.D.
AND
ELMER L. DeGOWIN, A.B.
ANN ARBOR, MICH.

Parenteral infections with the enterococcus appear to have been rarely recognized in this country, and American bacteriologists are inclined to doubt the pathogenicity of this organism.

In 1899, Thiercelin [1] described an organism which he considered a normal inhabitant of the human gastrointestinal tract. The germ was somewhat pleomorphic, sometimes appearing as a lanceolate diplococcus like the pneumococcus and sometimes as a "streptodiplococcus" looking like chains of diplococci. He found this organism in small numbers in normal stools but it became very abundant in certain intestinal diseases, such as mucous colitis. This author also isolated the organism from pus from the meninges in two cases of epidemic cerebrospinal meningitis. He found it in pus from suppurating appendicitis. He named the germ *Enterococcus*.

Houston and McCloy,[2] working in an English base hospital in 1916, found the enterococcus in a variety of conditions which they classified into three groups of cases. The first group they designated the "septicemic group." The patients in this group had septic temperatures for several weeks with other signs of generalized infection. The enterococcus was isolated from the blood, urine and sputum of many of these. The second group consisted of cases diagnosed as "trench fever." Enterococci were obtained from the blood, urine and sputum of some of these. Lastly, there was a "myalgic" group in which the same germ was often isolated. These three groups were all treated with autogenous vaccines with good results in the first two groups.

Tricoire,[3] in 1917, summarized the cases in which the coccus of Thiercelin had been found. Of localized conditions, it had been reported in gastro-enteritis in children, in "intestinal grip," in mucous colitis in children, in infections of the biliary system, in appendicitis, in peritonitis with associated scarlet fever, in primary peritonitis, and in the blood of a patient with appendicitis. In another group of cases which he called "enterococcemias with localization," the germ was found in such conditions as osteomyelitis, urethritis, respiratory infections, cardiovascular infections, arthritides and meningitis. He also recognized primary septicemias as well as those secondary to such diseases as tuberculosis. He considered vaccine therapy worth trying in cases which had been diagnosed bacteriologically.

Most bacteriologists consider the enterococcus identical with the *Micrococcus ovalis* of Escherich and the *Streptococcus fecalis* of the English and American workers. Most of the textbooks on pathogenic bacteriology in this country do not mention the organism at all, and such workers as Kendall and Haner [4] doubt that the organism is pathogenic. Went,[5] in a recent article, also considers the organism nonpathogenic.

In view of the more or less conflicting opinions on the pathogenicity of the enterococcus, we deem as worthy any additional information on the subject, such as the report of pertinent cases.

REPORT OF CASE

B. S., a boy, aged 6 years, was admitted to the University Hospital, Dec. 13, 1926, complaining chiefly of "albuminuria." The family history was negative. The child had had recurrent suppurative otitis media at 1 year, and later, measles, whooping cough and chickenpox.

About a month before admission, the boy had occasional attacks of vomiting. The vomiting ceased after two or three

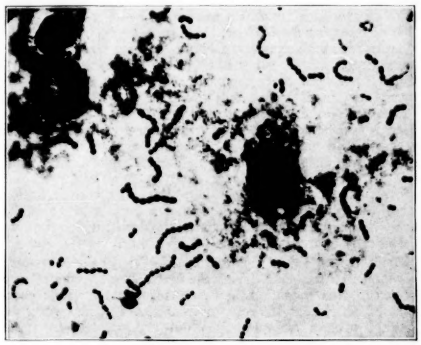

Fig. 1.—Photomicrograph of peritoneal fluid obtained from child with peritonitis. Attention is called to the lanceolate diplococci which occur separately and make up the chains. Gram stain.

days. Then the face, abdomen, legs and feet began to swell. The urine became scanty and contained some albumin. In the course of a week or ten days, the edema subsided gradually. During this period there was urinary frequency. The patient was kept in bed and received a diet consisting of fruit juice, milk and dry toast. He did not complain of pain, but felt tired and short of breath. Later, the puffiness of the face increased again, and he became more irritable.

Physical examination on admission revealed the following positive conditions: striking pallor and puffiness of the face, large abdomen, flattened umbilicus, and no definite fluid wave or shifting dulness. There were no other abnormalities. The blood pressure was 92 systolic and 76 diastolic; the temperature, 99.2; the pulse, 90, and the respiration, 20.

The urine showed albumin + +, a few hyaline casts, a few white cells, and no blood. The specific gravity was 1.028. The urine concentration test and the phenolsulphonphthalein test were normal.

A blood count showed: erythrocytes, 4,400,000; hemoglobin, 92 per cent (Sahli); leukocytes, 10,400 with 72 per cent polymorphonuclears. The Wassermann reaction was negative. The nonprotein nitrogen was 41.4 mg. per hundred cubic

* This investigation was supported by a grant from the Merrill-Palmer School, Detroit.

* From the Department of Pediatrics and Infectious Diseases, University of Michigan Medical School.

1. Thiercelin: Compt. rend. Soc. de biol. **51**: 269, 1899.
2. Houston, T., and McCloy, J. M.: Lancet **2**: 632-637 (Oct. 7) 1916.
3. Tricoire: Progrès méd. **32**: 387-390 (Nov. 17) 1917.
4. Kendall, A. I., and Haner, R. C.: J. Infect. Dis. **35**: 67-76 (July) 1924.
5. Went: Centralbl. f. Bakteriol., I, Orig. **100**: 62, 75.

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centimeters. The urea nitrogen was 12.4 mg.; cholesterol, 708 mg., and serum protein, 5.56 per cent (refractometric).

The basal metabolic rate was + 5 per cent (first determination). The child weighed 45½ pounds (20.6 Kg.). The intradermal tuberculin test (0.1 mg.) was negative.

During the patient's first ten days in the hospital, the temperature remained normal. The edema gradually increased, becoming most marked in the genitalia and lower extremities. The ascites increased rapidly and the abdomen became distended. On the eleventh day, the temperature was slightly elevated, reaching 105 F. by the following day. At the same time, the abdomen became much more distended and the child began to complain of pain, spontaneous and on manipulation. The tenderness was diffuse, involving all of the abdominal wall. Abdominal paracentesis revealed a yellowish cloudy fluid, containing small flakes of fibrinous material, large numbers of polymorphonuclears, and numerous gram-positive diplostreptococci. These organisms were mistaken for pneumococci. The leukocyte count at the time was 41,000, with 90 per cent polymorphonuclears. The child was treated with pneumococcus antibody solution intravenously and intraperitoneally. Death occurred five days later.

Postmortem examination revealed subacute, diffuse streptococcus peritonitis and subacute, recurrent appendicitis with recent exacerbation. There was cloudy swelling and fatty degenerative infiltration of the kidneys. Lymphoid hyperplasia was present with marked exhaustion of the germ centers. Areas of coagulation necrosis were noted in the mesenteric and retroperitoneal lymph nodes. There was passive congestion and parenchymatous degeneration of all organs.

BACTERIOLOGIC OBSERVATIONS

Altogether the abdomen was tapped four times in two days, and each time microscopic examination of the exudate revealed the same organism in large numbers. The organism was isolated in pure culture from the first specimen of exudate. Mr. G. H. Chapman of the Clinical Research Laboratory of New York City suggested to us the identity of the germ. A description of the germ would seem of some importance for the benefit of others who are confronted by the same situation.

On rabbit blood agar plates, the organism forms discrete, round, convex colonies which appear quite transparent at the end of eighteen hours' incubation at 37 C. but soon afterward become opaque and white when left at room temperature. These colonies are about twice as large as the ordinary hemolytic streptococcus and do not have the compact, granular appearance of the latter. The colony is surrounded by a zone of hemolysis. At the end of forty-eight hours' incubation the colonies themselves measure about 0.75 mm. in diameter, while the zone of hemolysis has a diameter of about 2.5 mm. Most of the older writers deny the power of the enterococcus to hemolyze blood, but Orcutt [6] describes it as forming a green ring in blood agar and recently Gundel [7] reported that there are strains that produce the green ring and strains that hemolyze completely. Our strain was found to be one of the latter type. After a few transplants, the organism could be grown on plain agar as a very fine film which was transparent and looked like a film of dewdrops. The germ grows readily on dextrose broth, in which medium it at first produces a uniform cloud which soon settles to the bottom as a fine granular precipitate, leaving a clear supernatant fluid.

The morphology is interesting. In the peritoneal exudate, the organism appears as a comparatively large, gram-positive coccus. This coccus is lance-shaped like the pneumococcus and is arranged in pairs and in chains of from four to eight cocci. The chains do not resemble streptococci because they are composed of diplococci joined together rather than a series of round balls. We believe that this is an important point to be kept in mind when examining pathologic fluids microscopically. These longer chains are not duplicated in artificial mediums, although shorter chains of two diplococci are often seen in broth. As a rule, the germ grows in broth as a lanceolate diplococcus looking much like the pneumococcus. The cocci from the agar plate are somewhat longer and narrower than in broth and have a decided tendency to arrange themselves in pairs with their long axes parallel. Pleomorphism has not been noted to any important degree in our cultures. We have never observed capsules either in pathologic fluids or in culture. The organism is not bile soluble, thus being definitely separated from the pneumococcus.

Dible [8] and Houston and McCloy [2] have emphasized the heat resisting properties of the enterococcus. After a study of 152 strains of fecal cocci, Dible laid down

Fig. 2.—Blood agar plate culture showing white colonies with zones of hemolysis around them. The colonies are opaque and quite convex, a characteristic which is not shown well in the photograph. Culture incubated twenty-four hours at 37 C.

the rule that if a coccus which was either a streptococcus or an enterococcus was found to survive exposure to 60 C. for fifteen minutes, it was invariably an enterococcus. Our strain conformed to this test, which was carried out in capillary pipets as used by Dible. The strain also kills mice in eighteen hours when a suspension is injected intraperitoneally.

COMMENT

The pathologist considered that the peritonitis in this case was secondary to an acute exacerbation of a chronic appendicitis. This would account for the presence of an organism which is normally an inhabitant of the intestinal tract.

This case is important in that it emphasizes the need for accurate diagnosis. There can be no doubt that this condition could be diagnosed many times if laboratory workers were on the lookout for it. The common mistake is, no doubt, the one that occurred at first in the case reported, namely, the tendency to regard the

6. Orcutt, M. L.: J. Bact. **11**: 129-139 (Feb.) 1926.
7. Gundel: Centralbl. f. Bakt. I, Orig. **99**: 469-478.
8. Dible, J. H.: J. Path. & Bact. **24**: 3-34 (Jan.) 1921.

germ as an atypical pneumococcus on account of its morphology. The possible presence of this germ should be considered in cases of so-called pneumococcus peritonitis and streptococcus peritonitis. As quick a differentiating point as any from the laboratory point of view is the heat resisting character of the enterococcus, which Dible emphasized. After having once seen the growth on blood agar, one should not have any difficulty in differentiating it from a streptococcus.

UNILATERAL SYMPTOMS IN MENINGITIS *

ABRAHAM LEVINSON, M.D.
CHICAGO

The classic signs of meningitis, such as the Brudzinski, Kernig and Babinski, are usually bilateral. When unilateral symptoms occur, one is often inclined to rule out the presence of meningitis and to think of brain abscess, brain tumor, encephalitis or poliomyelitis.

I have encountered cases that manifested unilateral Brudzinski, Kernig and Babinski signs, in which the character of the cerebrospinal fluid, and, in some instances, the necropsy, proved the presence of a meningitis, either tuberculous, pneumococcic or meningococcic. This shows that, although the classic signs of meningitis are usually bilateral, unilateral manifestations of meningeal irritation do not exclude the diagnosis of meningitis. This knowledge is particularly important in the diagnosis of meningococcic meningitis, in which reliance on unilateral symptoms to exclude meningitis may lead to delay in the removal of cerebrospinal fluid and the administration of serum with consequent disastrous results.

Unilateral manifestations during the course of meningitis may be divided into two types: (1) intermittent unilateral manifestations, and (2) constant unilateral manifestations. Each of these may be subdivided into two classes: (*a*) late unilateral manifestations, namely, cases that start as typical meningitis with bilateral symptoms and manifest unilateral symptoms during the advanced stages of the disease, and (*b*) early unilateral manifestations or cases that start out with unilateral symptoms.

LATE INTERMITTENT UNILATERAL MANIFESTATIONS

Case 1 illustrates the late occurrence of intermittent unilateral manifestations in tuberculous meningitis:

CASE 1.—B. D., colored, aged 19 months, entered the Cook County Hospital with a history of frequent colds and cough at irregular intervals for the past nine months. One week previous to admission the patient had measles. The patient's mother had died of tuberculosis; the cause of the father's death was unknown. On entrance, the temperature was 100 F.; subsequently it fluctuated between 100 and 103 daily. Physical examination on admission revealed the classic signs of rickets, such as marked rosary, pot belly, umbilical hernia and enlarged epiphysis. There were numerous moist and dry râles in both lungs, especially over the right lower lobe posteriorly. There were no signs of meningeal irritation. A mucopurulent discharge from the left eye was positive for Klebs-Loeffler bacilli and negative for gonococci. The Pirquet test was positive and the blood Wassermann reaction was negative.

About a month later, the child became drowsy and had a rigid neck, at which time the onset of meningitis was evident. It was not, however, until several days later that the patient developed a paralysis of the sixth cranial nerve and unilateral Kernig and Brudzinski signs. The unilateral phenomena were not constant, at times becoming bilateral. The cerebrospinal fluid was under increased pressure, but was blood tinged and therefore could not be used as an aid in diagnosis.

The roentgenogram showed nodular tuberculosis in both lungs.

The necropsy, performed by Dr. Paul Schmidt, revealed diffuse caseous and miliary tuberculosis of the brain and leptomeninges; thrombosis of the superior longitudinal sinus (no sinus puncture had been done); ulcerocaseous nodular tuberculosis of the lungs; nodular tuberculosis of the liver, kidneys and spleen; tuberculous ulceration of the cecum, and the mesenteric lymph glands; dilatation of the lateral ventricles of the brain, and chronic left otitis media.

EARLY INTERMITTENT UNILATERAL MANIFESTATIONS

The following two cases illustrate the presence of early intermittent unilateral manifestations of meningitis. Case 2 is one of tuberculous meningitis, case 3, one of meningococcic meningitis. Because of the unilateral manifestations, the first case was diagnosed as an upper respiratory infection on admission and the second case was diagnosed as an acute anterior poliomyelitis. The second case also illustrates the importance of early spinal puncture.

CASE 2.—R. C., a white boy, aged 3 years, was admitted to the Cook County Hospital with a history of sore throat, anorexia, headache, convulsions and malaise of four days' duration. The patient's mother had died of tuberculosis. There was impaired resonance of the right side of the chest with a few crackling râles scattered over the chest. There was no tubular breathing. The neck was slightly rigid and the Brudzinski sign was suggestive. The Kernig sign was positive on the right side and negative on the left. The Oppenheim sign was also positive on the right and negative on the left. Three days after admission there were definite signs of meningitis. The patient had convulsions, which started in the right arm, involved the left leg and then became generalized. There were at this time bilateral Kernig, positive Brudzinski and positive bilateral Oppenheim signs. The cerebrospinal fluid was clear and under increased pressure. The Pandy test was positive, and there were 152 cells per cubic millimeter, mostly lymphocytes. The Wassermann reaction was negative, and no organisms were obtained on direct smear or culture. A diagnosis of tuberculous meningitis was made. The patient died two days later.

The necropsy revealed miliary tuberculosis in the lungs, liver, kidneys and spleen; left diaphragmatic pleurisy (tuberculous); miliary tuberculosis of the brain and leptomeninges; exudative tuberculous leptomeningitis; caseous tracheobronchial glands with rupture into the right main bronchus; caseous tuberculosis of the right lower lobe; dilatation of the ventricles of the brain.

CASE 3.—J. B., aged 2½ years, seen in consultation, had had rigidity of the neck and a left-sided Kernig and neck Brudzinski sign for three days. The unilateral manifestations suggested acute anterior poliomyelitis, and the physician had deemed it unnecessary to do a spinal puncture. On the third day, however, when the meningeal symptoms became bilateral, a spinal puncture was done. The cerebrospinal fluid was turbid and contained several thousand cells and many meningococci. The case terminated fatally. Necropsy was not performed.

LATE CONSTANT UNILATERAL MANIFESTATIONS

The following case illustrates the occurrence of constant unilateral manifestations in a patient who had had a mastoiditis, the meningeal symptoms appearing late in the course of the disease:

CASE 4.—L. W., a boy, aged 2 years, entered the Sarah Morris Hospital for Children, April 30, 1927, in the service of Dr. Ira Frank, with a history of fever of eight weeks' dura-

* From the Sarah Morris Hospital for Children of the Michael Reese Hospital, and from the Department of Pediatrics of the Cook County Hospital.

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tion and slight swelling behind the right ear of one week's duration. The right ear drum had been punctured eight weeks before admission. A mastoidectomy was performed on the day of admission to the hospital. May 6, six days after the operation, the child became drowsy and vomited. Physical examination, however, was negative. May 7, the child was drowsy. Ankle clonus was present on both sides, especially on the right. The pulse was slow and irregular. The mastoid wound was reopened because of the possibility of a thrombosis of the lateral sinus. A spinal puncture was done, May 7; 8 cc. of fluid was removed under increased pressure (28 mm. of mercury); the cell count was 107, and there was a trace of globulin. The Wassermann and Lange tests were negative.

The next day the child remained drowsy and listless and had an ankle clonus on the right side. There was a papilledema of both optic disks. The temperature was 103, the pulse, 108, the respiration, 44. May 10, another spinal puncture was done, which yielded 20 cc. of slightly cloudy fluid under increased pressure (28 mm. of mercury). The cell count was 1,300 with 80 per cent lymphocytes. On direct smear, gram-positive diplococci were found with occasional short chain arrangements, which proved on twenty-four hour culture to be hemolytic streptococci.

A right-sided decompression operation was done the same day. A tense, bulging dura was found. No ventricular fluid was obtained on needling. The next morning the child had convulsions involving both legs and the left arm. The pulse became gradually weaker, and death occurred the same day.

Necropsy, performed by Dr. Benson Bloom, revealed a fibrinopurulent exudate of the leptomeninges over the left convex surface of the brain, around the parietal and temporal region (fig. 1*A*). No exudate was seen on the right convex surface of the brain. The subarachnoid fluid of the base of the brain was cloudy and pale gray, and over the inferior surface of the brain in the region of the base there was a diffuse thickening of the pia arachnoid but no green fibrinopurulent exudate like that seen on the outer surface of the left cerebral hemisphere. In the lateral portion of the right temporal lobe there was a large area of irregular softening of the brain substance, due to the decompression operation (fig. 1*B*). In the outer portion of the right cerebellum was another area of softening with abscess formation, which probably communicated with the mastoidectomy wound on the right side. The right middle ear was filled with thick, greenish, purulent material. The left middle ear was normal. Sinus thrombosis was not found.

EARLY CONSTANT UNILATERAL MANIFESTATIONS

The following three cases are quoted here to illustrate the occurrence of early constant unilateral symptoms. One case proved to be tuberculous meningitis; one was most likely a streptococcus and the other a meningococcus meningitis.

CASE 5.—J. A., a colored boy, aged 1 year, was admitted to the Cook County Hospital, Jan. 15, 1927, with a history of inability to walk, fever, anorexia for seven days, diarrhea for three months, and loss of the use of the left side of the body for three days. The developmental history was normal, the first tooth having erupted at 5 months and the child having sat up at 6 months of age. There was no history of any previous illness. The patient's mother had had three miscarriages. When the child was examined on admission, the lungs were normal but the left arm and leg appeared weak and useless, with a suggestion of spasticity. The cerebrospinal fluid obtained by spinal puncture was colorless and under increased pressure. There were 600 cells.

Three days later the patient had a left-sided facial palsy. There was moderate rigidity of the neck; Kernig's sign was negative. The cerebrospinal fluid on this day contained 300 cells, and a pellicle formed on standing. The following day the Babinski sign was positive on the left side, the reflexes were greatly exaggerated, and there was a paralysis of the left arm and a paresis of the left leg. There also was a head drop and the eyes were turned to the right. A cistern puncture was done the following day and fluid was obtained under increased pressure. It contained 300 cells per cubic millimeter, the Pandy and Ross-Jones reactions being negative. Roentgenologic examination showed a density radiating outward from the right hilum and suggestive foci of pneumonia. A diagnosis of encephalitis or meningitis was considered. The patient died one week after admission.

The conditions found at necropsy were diffuse basilar tuberculous leptomeningitis; hyperemia and edema of the brain and leptomeninges; marked dilatation of the lateral ventricles; diffuse nodular caseous tuberculosis of the lungs; miliary tuberculosis of the liver, spleen and tracheobronchial glands, and bilateral otitis media.

CASE 6.—R. K., a boy, aged 1 year, admitted to the Sarah Morris Hospital for Children, May 15, 1927, had convulsions twelve hours previous to admission. The patient had been at the hospital six months previously for a partial intestinal obstruction, possibly an intussusception, which reduced spontaneously.

The present illness began the day following a party given in honor of the child's first birthday. The father stated that

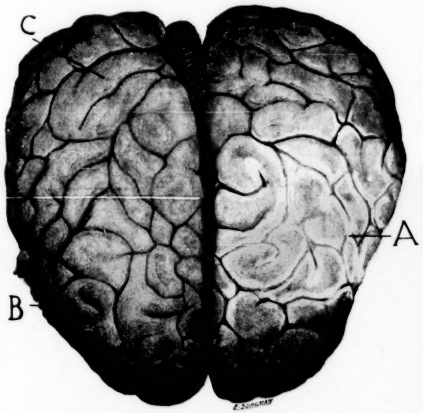

Fig. 1.—Anterior superior view of the brain showing unilateral meningitis affecting the left parietal and temporal region: *A*, meningitic exudate; *B*, focal necrosis following decompression operation; *C*, normal meninges.

at the onset of the illness the child was in a peculiar position described as approaching the knee-chest position. Later, respirations became rapid and lateral nystagmus and generalized convulsions occurred. The convulsions were repeated immediately preceding admission to the hospital. Development and feeding had been normal.

On admission, the child was having convulsions. He also had internal strabismus of the right eye. The pupil reacted normally. There was no rigidity of the neck, and the reflexes were all normal. The tonsils were hypertrophied. The temperature was 102, and rose in a few hours to 104. A spinal puncture was done on the day of admission. The fluid was clear and under increased pressure; the cell count was 10, and the globulin test was negative. The Wassermann and Lange tests were also negative. The sugar content was 51 mg. per hundred cubic centimeters of fluid. The culture of the fluid was contaminated. The white blood count was 45,000, with 93 per cent polymorphonuclears. The urine contained acetone and reduced Haines solution. The reduction test, however, was negative on subsequent examinations.

Because of the negative reactions of the cerebrospinal fluid, the condition was thought possibly to be due to the onset of an acute infectious disease with secondary acidosis, although tuberculous meningitis and acute encephalitis were also considered.

The day after admission, the child's temperature rose to 105, and a number of crepitant râles were present over the left base. The urine did not contain acetone or sugar, and the white cell count dropped to 18,000 with 84 per cent polymorphonuclears. The Pirquet test was negative. Pneumonia with secondary acidosis was considered.

On the reappearance of convulsions, a cistern puncture was done. Clear fluid was obtained under increased pressure. There were 81 cells per cubic millimeter, of which 50 per cent were polymorphonuclears. The globulin test was positive. No organisms were found on direct smear or culture.

A neurologic examination revealed some opisthotonos. There was left hemiplegia with continuous clonic movements of the left lower extremity, outward rotation of the eyeballs, nystagmoid movements to the left, and haziness of the temporal side of the left optic disk. A ventricular puncture was attempted but no fluid was obtained.

The next day the patient was in deep coma and had spasticity of the left lower extremity. The heart and lungs were normal. A spinal puncture was done but the fluid was bloody; a cistern puncture was therefore done. Fifteen cubic centimeters of cloudy fluid was obtained under increased pressure. The fluid contained 1,200 cells, mostly polymorphonuclears, and some large endothelial cells. No organisms were found. Because of these conditions, 20 cc. of meningococcic serum was introduced into the cistern. The diagnosis of localized meningitis, with possibly a streptococcus infection spreading to the rest of the meninges, was considered. Acute encephalitis was also considered. Following the cistern puncture, the child had a left-sided convulsion and frothing at the mouth. Death occurred the same day.

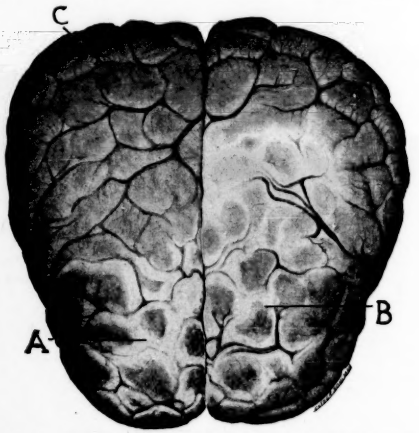

Fig. 2.—Anterior superior view of the brain showing localized meningitis: *A*, meningitic exudate over right frontal region; *B*, meningitic exudate over left frontal and parietal region; *C*, normal meninges.

The necropsy, performed by Dr. Benson Bloom, revealed a small area of traumatic subdural hemorrhage consisting of a loose blood clot about 4 cm. in diameter seen beneath the anterior fontanel. Diffuse subarachnoid hemorrhage was present all over the right convex surface of the brain. The hemorrhage most likely was due to trauma inflicted during the attempt to do a ventricular puncture. There was a purulent subarachnoid exudate involving the frontal and parietal surfaces of the brain. The exudate appeared more extensive on the left side than on the right, especially over the parietal region (fig. 2). The meninges at the base of the brain were unaffected. The ventricles were not dilated and did not contain exudate. There was a slight foramen magnum pressure-groove at the base of the cerebellum. There was a hyperplasia of the mesenteric and intestinal lymphoid tissue and some atelectasis of the upper lobe of the right lung.

CASE 7.—L. G.,[1] a girl, aged 10 years, entered the Sarah Morris Hospital with a history of a cold four weeks before admission, which was followed by moderate enlargement of the cervical glands. Two weeks previous to admission, the patient came home from school complaining of headache. Since that time she had had an intermittent elevation of temperature, at times as high as 104. The headache disappeared and then reappeared a few days later. On the day before admission, she had a convulsion which lasted fifteen minutes and was limited to the left side of the body. Following the convulsion, the patient was unable to move the left arm or leg.

There was paralysis of the left arm with loss of the deep reflexes. The left side of the face was weak, and the tongue deviated to the left. Both legs could be moved, but the left appeared weaker than the right. The contralateral Brudzinski sign was positive on the right side but not on the left. The left achilles jerk was increased; the right achilles jerk was normal. There was a beginning ankle clonus. The left wrist jerk was absent; the right was diminished. The abdominal reflexes were fairly brisk on the right side and absent on the left side. The ophthalmoscopic examination showed the disks to be small, slightly oval and sharply circumscribed. The retinas were slightly hyperemic. The arteries were normal. All the veins were somewhat congested and dilated. No pathologic regions were visible.

A spinal puncture done on the day of admission yielded slightly turbid cerebrospinal fluid under increased pressure with 567 cells, of which 55 per cent were neutrophils, 40 per cent small mononuclear, and 5 per cent large mononuclear. Direct smear was negative. Globulin was increased and the Wassermann reaction was negative. The Lange test showed 0000004400. A second specimen of spinal fluid obtained the next day was turbid, under increased pressure and contained 650 cells, 64 per cent lymphocytes and 26 per cent neutrophils. Direct smears showed an occasional gram-negative extracellular diplococcus.

The diagnosis lay between cerebral abscess and meningitis. The localized symptoms pointed toward a cerebral abscess over the right temporal region. The cerebrospinal fluid, however, pointed to meningitis. The diagnosis was decided on in favor of a brain abscess, and a decompression was performed in the temporal region. Needling of the brain, however, did not reveal any pus. The meninges in the prerolandic area were gray and glistening and did not show exudate. The postrolandic area, as far as could be seen, showed a hyperemia with a little fibrinous exudate.

The next day the patient received 30 cc. of antimeningococcus serum intraspinally, and a general improvement in her condition was noticed. The spinal fluid removed that day was cloudy, with a cell count of 2,300 and 72 per cent polymorphonuclears. No organisms were seen and no growth was obtained on culture medium. The same day examination showed that the patient was able to raise the left arm but unable to replace it. The right side was normal. The following four days she seemed to be improving and the paralysis seemed to clear up, although she complained of headache. A week after the operation, the patient developed a marked edema of the neck and the glands were incised and drained. The patient, however, became gradually worse and died ten days after admission.

The necropsy was performed by Dr. O. T. Schultz two hours after death. A thick yellow exudate was found beneath the pia of the convex surface of the right temporal and parietal lobes. A small amount of similar exudate was present over the convex surface of the left hemisphere, and on the lower surface of the brain on the left side. There was no exudate about the base of the brain or the cervical cord. On section, the right lateral ventricle contained a slightly increased amount of cloudy fluid; the left ventricle was normal. Except as stated, there were no other gross changes in the brain. On microscopic examination, the pia was found to be infiltrated

1. This case was reported previously (Arch. Pediat. **40**: 164 [March] 1923, but, because of its importance, a summary is given here.

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by leukocytes, and fibrin was present in slight amount. In some of the larger arteries in the infiltrated pia, the endothelium was separated from the rest of the wall by a narrow, dense zone of leukocytes. The brain tissue at the site of the operation was more cellular than the rest of the tissue, owing to the diffuse proliferation of glia cells.

The lungs were moderately congested posteriorly, and the spleen was enlarged to two and one-half times its normal size. The liver was moderately enlarged, as were also the kidneys. From the meninges, a culture of meningococcus agglutinated by stock meningococcic serum was obtained, and from the fluid of the right ventricle a culture of *Streptococcus hemolyticus* was developed.

In the following case of tuberculous meningitis, I believe that the unilateral symptoms of meningeal irritation and the blindness of one eye may be explained on the basis of a tuberculoma at the base of the brain.

CASE 8.—C. D., a colored girl, aged 12 years, was admitted to the Cook County Hospital, Oct. 22, 1927, with a history of vomiting, constipation of two weeks' duration, and stupor with a duration of two days. There was also a history of headache of seven months' standing, and blindness of the left eye. The headache was mainly localized over the left supra-orbital region, and was worse at night. The patient had whooping cough ten years ago, mumps seven years ago, and measles two years ago. There was no history of tuberculosis in the family.

At the time of admission the patient was stuporous, and the temperature was 101.2; the left pupil was smaller than the right; the right fundus was normal, and the left showed optic atrophy. There were decreased resonance and diminished breath sounds over the right upper lobe anteriorly. The neck was rigid, and the Kernig and Babinski signs were positive on the right side and negative on the left side. The knee jerks were present on the right side and absent on the left. The achilles reflex was present on both sides. The white blood count was 21,000, with 80 per cent lymphocytes. The cerebrospinal fluid obtained by lumbar puncture one day after admission was clear, under increased pressure, and contained 50 lymphocytes per cubic millimeter. The Pandy test was strongly positive. The sulphosalicylic-mercuric chloride ratio was 1 to 2. Sugar was 10 mg. per hundred cubic centimeters of fluid, and the Wassermann reaction was negative. A second spinal puncture, done four days later, yielded about the same results as the first except that there were 490 lymphocytes per cubic millimeter.

The Pirquet and Mantoux tests were negative. The blood Wassermann reaction also was negative. The roentgenologic examination showed increased density in the right upper lobe. The skull plate was negative for tumor of the sella turcica.

The patient regained consciousness at times, but was stuporous most of the time. She became progressively worse and died seven days after admission to the hospital.

A necropsy performed by Dr. Paul Schmidt revealed a tuberculoma at the base of the brain (fig. 3) with pressure atrophy of the optic chiasma; tuberculous osteitis of the sella turcica and surrounding bone; miliary leptomeningitis; caseous tuberculosis of the tracheobronchial glands; purulent tracheobronchitis; right obliterative pleuritis, and subacute fibrinous peritonitis.

PATHOGENESIS

The mechanism responsible for the production of unilateral symptoms in meningitis does not seem to be the same in all cases. In some cases the necropsy may show a unilateral or localized exudate, which may explain the unilateral symptoms. In other cases, no anatomic changes are found. I believe that the phenomenon may be explained on the basis of three possibilities: (1) localized meningitis, either acute or chronic; (2) generalized meningitis with a heavier exudate on one side of the brain than on the other; (3) a localized permanent irritation of the brain, such as occurs in brain abscess or tumor, producing a so-called sterile meningitis. Finally, there is a possibility that a temporary accumulation of cerebrospinal fluid over one portion of the brain may temporarily produce unilateral symptoms.

According to this conception, unilateral manifestations of meningitis may be classified as primary, such as occur in the meningococcus or the tuberculous types, and as secondary, such as occur in connection with a brain abscess, brain tumor or mastoiditis. Localized meningitis is not as rare as one would suppose it to be, as is proved by some of the cases reported here that came to necropsy. I have also encountered a case of fibrinous exudate at the base of the brain in a baby several weeks old, most likely having followed cerebral hemorrhage which occurred either at or before birth.

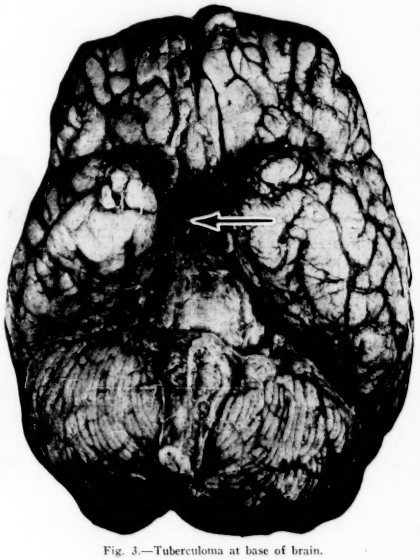

Fig. 3.—Tuberculoma at base of brain.

In an attempt to produce experimental meningitis in rabbits by the injection of staphylococci and streptococci into the cisterna magna, Dr. A. M. Serby and I found that in most cases an exudate developed only at the base of the brain, or over one hemisphere of the brain.

DIFFERENTIAL DIAGNOSIS

The fact that meningitis may be accompanied at one time or another by unilateral manifestations adds to the difficulty in the differential diagnosis between meningitis, brain abscess and acute anterior poliomyelitis. The history of sudden onset may help in differentiating meningitis with unilateral manifestations from brain abscess, as may also the temperature, which is much higher in meningitis than in brain abscess. Absence of paralysis may help rule out poliomyelitis, although paresis and paralysis may manifest themselves in meningitis also. The final diagnosis must be made by the cerebrospinal fluid, according to its color, increased pro-

tein content, increased cell count, pellicle, reduction in sugar and chloride content, and, above all, the organisms present. It is therefore important to examine the cerebrospinal fluid in every case presenting unilateral symptoms.

TREATMENT

Before treatment is instituted in a case manifesting unilateral symptoms of meningitis the cerebrospinal fluid should be obtained and studied for the cell count and an increase in protein, and a search should be made for the organism. If the fluid has cellular and chemical changes characteristic of meningitis but no organisms are found, an attempt should be made to decide whether the meningitis or meningeal symptoms are primary or are secondary to some other infection in the vicinity of the meninges, such as otitis media, brain abscess or brain hemorrhage. If the fluid is turbid, antimeningococcic serum should be administered. If the meningitis is secondary, the primary cause should be removed whenever possible. For instance, in the case of otitis media, the mastoid should be opened and free drainage permitted. The same is true of brain abscess. If no cause is found, repeated spinal, ventricular or cistern drainage should be carried out. Case 9 illustrates the importance of surgical treatment in meningitis with unilateral manifestations due to brain abscess.

CASE 9.—H. C., a boy, aged 5½ years, was admitted to the Sarah Morris Hospital for Children, March 28, 1924, with the diagnosis of an acute bilateral otitis media and grip. March 17, a left mastoid operation was performed and pus obtained. One week later, the patient had several convulsions, mostly left-sided. The physical examination at this time was negative and the eyegrounds were normal. The patient was discharged, May 21 1924, with the mastoid wound granulating but not draining.

June 7, 1924, the patient was readmitted, complaining of vomiting after meals, fainting spells and dizziness during the night, with persistent frontal headaches, especially in the morning. The child did not appear acutely ill and the temperature was normal.

The mastoid wound was draining thick pus, but there was no drainage from the ears. The pupils were dilated and reacted sluggishly. Ophthalmoscopic examination showed bilateral choked disks. There was no neck rigidity, but neck movements caused pain. There was a Babinski reflex present on the left side. The white blood count was 9,300 with 47 per cent polymorphonuclear leukocytes and 44 per cent lymphocytes. Cerebrospinal fluid obtained by spinal puncture was under increased pressure, and the cell count was 20, all lymphocytes. The globulin test was negative, as was also the Wassermann reaction. The Lange test gave a tuberculous meningitis curve. Three days later a bilateral internal strabismus was noted, and the Brudzinski and Kernig signs were positive on the left side. The roentgen-ray examination did not reveal a brain tumor or abscess. June 16, the neck was rigid, and there was a positive Brudzinski and Babinski sign on the left side. The Kernig sign was present, especially on the left, and there was weakness of the right external rectus muscle. The left knee jerk was absent, and the deep reflexes of both upper extremities were also absent. The previous day, the white cell count was 30,000, and the temperature was 103 F. The cerebrospinal fluid was turbid and under increased pressure. The cell count was 3,600, of which there were 58 per cent polymorphonuclear leukocytes and 40 per cent lymphocytes. There was 73 mg. of sugar per hundred cubic centimeters of fluid, and direct smear was suggestive of gram-negative intracellular diplococci and also lancet-shaped gram-positive organisms. A diagnosis of brain abscess which had ruptured or a localized meningitis was considered. Thirty cubic centimeters of antimeningococcus serum was given intravenously. The following day the fluid was less turbid, the cell count was 1,420, and the globulin was increased. Thirty cubic centimeters of serum was again given. June 17, 1924, the left mastoid wound was reopened, and the dura exposed and incised over the temporal region. About 10 cc. of a thick pus was evacuated. Two days after the operation, the child was greatly improved, and the temperature dropped to 99. The neck, however, was rigid and the choked disks were more pronounced. There were very few minute hemorrhages at the summit of both disks. The pus obtained by operation showed *Streptococcus hemolyticus* on culture. Eleven days after operation there was very little discharge from the wound, which was healing, and there were no neurologic symptoms. The spinal fluid contained twenty-two cells, all lymphocytes, and 50 mg. of sugar. The globulin, smear and culture were all negative. June 29, the child was happy, and only slight bilateral choked disks were present.

July 9, one month after the readmission, the child was stuporous, the pupils were dilated and there was an internal strabismus with marked choked disks. The Brudzinski sign was positive and spinal fluid sugar was 74 mg. per hundred cubic centimeters. The temperature was normal at this time. The same left mastoid wound was reopened and pus evacuated. Drainage of the wound continued, but there were no abnormal conditions and the child was discharged, October 22.

Five days later, the child was readmitted because of a profuse discharge. The child was discharged, Jan. 7, 1925, with a normal temperature and no discharge from the wound.

Feb. 7, 1926, the child was readmitted because of profuse drainage from the right ear and pain in the right ear for one week prior to the onset of the discharge. The following day pus was obtained from an incision into a left subperiosteal abscess. The child was discharged in good condition, February 19, with a small amount of pus draining from both ears.

CONCLUSIONS

1. Unilateral manifestations may occur in meningitis.
2. The unilateral symptoms may be intermittent or constant, and may occur early or late in the course of the disease.
3. Unilateral symptoms may occur in meningitis caused by any bacteria.
4. The necropsy in meningitis with unilateral symptoms may or may not show unilateral or localized pathologic changes.
5. Meningitis with unilateral symptoms may be primary or secondary.
6. Brain abscess, brain tumor, encephalitis and acute anterior poliomyelitis are the conditions most frequently confused with meningitis of the unilateral type.
7. The examination of the cerebrospinal fluid is the best means of differentiating meningitis with unilateral symptoms from other conditions.
8. The treatment of a patient with unilateral meningeal manifestations depends on whether the meningeal condition is primary or secondary. In the secondary form, an attempt should be made to remove the original cause. In the primary form, an attempt should be made to find the causative organism in the cerebrospinal fluid, with treatment by serum in meningococcic meningitis, or by palliative means if other organisms are found.

30 North Michigan Avenue.

The Liver Aids the Muscles in Storing Glycogen.—But there is another organ of the body which acts further as a storehouse for glycogen. This is the liver, whose cells are so constructed that they too convert the dextrose or sugar in the blood into glycogen and retain it, until the store in the muscles is so far depleted that it must be replenished. If it were not for the stored glycogen of the liver which is supplied to the muscles at their need, starvation would more quickly end in death.—Goldmark: Fatigue and Efficiency, p. 22.

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THROMBOSIS OF THE DEEP VEINS OF THE LOWER EXTREMITY

REPORT OF CASE *

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AND
F. I. SHATARA, M.D.
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While thrombosis of the deep veins—venae comites—of the lower extremity is often mentioned in the literature, its occurrence is so rare as to warrant a brief presentation of the subject, and the report of a case. In a careful study of more than 2,000 cases of varicose veins and their complications during the last ten years, the case here presented is the only one observed of true thrombosis of the deep veins of the lower extremity. It is the only case in which the venous current is completely diverted into the superficial saphenous system, resulting in varicosities, but contraindicating operation for ligation or excision of the superficial veins.

It is commonly taught that the guide to the operability or inoperability of a given case of varicose veins of the lower extremity is the filling time test; that when

Fig. 1.—Anterior view of patient.

the filling time is thirty seconds or less, this finding is an indication of involvement of the deep veins and the incompetence of the valves in the perforating veins, permitting regurgitation from the deep into the superficial system, rendering the case inoperable. If, on the other hand, the filling time is more than thirty seconds, it is alleged that the deep and perforating veins are normal and the case is operable. Extensive clinical observation, checked up by operation, studies of venous pressure by direct puncture and connection to a manometer—a method introduced by us—and dissection on cadavers have convinced us that the filling time test is of little value; that the actual time taken to fill the saphenous vein after it is emptied depends on the caliber of the vein, the number of its tributaries, and the vis a tergo; that the deep veins, owing to the strong fascial support which they enjoy, are seldom varicosed, except when they are the site of infectious thrombosis, as in the case here reported; that the valves in the perforating

Fig. 2.—Posterior view of patient.

veins are often missing, and have been found to open both ways, and that they play a very small rôle in determining the direction of the stream between the superficial and the deep systems. Kampmeier,[1] in an exhaustive study of the origin of the venous valves, says:

> The explanations usually presented respecting the utility of the venous valves demand a reconsideration. The writer believes that the factors underlying their function must be sought not in the circulation itself, but extrinsically, that is, in the effects of external compression of the peripheral venous plexus. It is significant, though it may be only a coincidence, that the valves are laid down primarily in areas of muscular activity and at a time when the fetus commences to execute skeletal movements, while the intrinsic gateways of the propulsive mechanism, the heart, are established much earlier. . . . The reader need hardly be reminded that animals whose bodies and appendages are generally in a horizontal posture, such as amphibians, reptiles, etc., are well provided with venous valves. Moreover, during the second half of pregnancy—during the period when the venous valves are being formed and completed—the human fetus is prevalently carried with the lower extremities uppermost, thus in a position which is farthest removed from the possible influence of gravity in the development of the valves.

* From the Surgical Department, Long Island College Hospital.

1. Kampmeier: Am. J. Anat., Jan. 15, 1927.

We have operated on patients with a filling time of less than thirty seconds, with no ill after-effects. The operation performed, a ligation and excision of the saphenous vein and its tributaries is safe, gives excellent results, and is applicable to all cases of varicosities of the saphenous system, irrespective of the filling time, except where there is a definite contraindication, as in the case here reported.

REPORT OF CASE

T. S., a white youth, aged 19 years, single, a plumber's helper, born in England, reported to the Polhemus Clinic in March, 1925, for examination of varicose veins of the lower left extremity.

His present illness followed an attack of typhoid in 1919 for which he was treated at the Long Island College Hospital. Before leaving the hospital in October, 1919, he noticed that his left leg was swollen. He was told that he had a "milk leg," and his leg was strapped. Ever since that time the veins of his lower left extremity have been markedly enlarged, but he has not complained of the symptoms often associated with varicose veins, such as pain, numbness, tingling or fatigue. There have been no trophic changes in the soft tissues, and no ulceration.

As a child he had measles and diphtheria. He had influenza at the age of 11 and typhoid at 13. He has been fourteen years in the United States. He has been working since the age of 13 as a plumber's helper, and is on his feet a great deal. His habits are regular, and there is no history of constipation or any other intra-abdominal obstruction to the venous current. He wears garters. His mother suffered from varicose veins and was operated on by Dr. Barber.

The Wassermann reaction is negative. The urine is normal. The systolic blood pressure is 125; diastolic, 80. The general physical examination is negative. Associated varicosities consist of a left varicocele; there are no hemorrhoids.

The left internal saphenous vein is markedly varicosed throughout its entire extent, but this varicosity differs from the usual varicosities of this vein in the following respects: Over the fossa ovalis, where the internal saphenous vein dips to join the femoral vein, there is a markedly varicosed and tortuous mass of veins, consisting of a wormlike collection of veins irregularly clumped together, and resembling somewhat the caput medusae in an advanced case of portal obstruction. The mass measures about 2 inches (5 cm.) in diameter and it is difficult to locate the main stem of the vein. All the tributaries that drain into the internal saphenous vein at this point are markedly varicosed; the superficial external pudic, the superficial external and internal circumflex, and the superficial epigastric veins stand out prominently. In these tributaries the venous current is diverted from its usual course. Thus in the superficial external circumflex the venous current runs upward instead of downward and ultimately enters a vein in the axillary region with which the circumflex establishes an anastomosis.

The superficial internal circumflex vein on the left side runs upward toward the umbilicus, where it becomes continuous with the analogous vein on the right side. The latter vein runs downward to drain into the right saphenous vein. The two internal circumflex veins are markedly enlarged, measuring about 1 cm. in diameter, tortuous, and look like an inverted V with the apex at the umbilicus. In this manner a great deal of the blood from the left internal saphenous vein finds its way into the right internal saphenous vein. It is possible that an anastomosis exists with the para-umbilical vein. The direction of the current is upward in the left and downward in the right superficial internal circumflex veins.

When the patient is up on his feet, these veins stand out prominently; when in the horizontal position, the veins become less prominent; and when placed in the Trendelenburg position, the veins collapse.

A manometer reading was taken, the needle being introduced into the left superficial internal circumflex vein. The blood in the manometer tube rose to the heart level, a distance of 14 inches. This finding illustrates the fact that, even with such handicaps obstructing the venous current in its way toward the right auricle, the vis a tergo rises to a point sufficient to propel the blood onward toward the heart. The old teaching, therefore, that in varicose veins there is a reversed circulation, with the blood flowing away from the heart, is erroneous. As long as cardiac compensation is maintained, no such reversal of current occurs.

The Trendelenburg test was positive, and the filling time was thirty seconds.

COMMENT

From these observations we are led to believe that a partial or complete thrombosis, of an infectious origin, exists in the deep veins of the left lower extremity, extending upward to a point proximal to the point at which the saphenous joins the femoral vein. How far up the femoral or iliac the thrombosis extends, it cannot be positively stated, for while the patient has an associated left varicocele he has no hemorrhoids, which would have existed had the iliac been thrombosed up to a point proximal to that at which the middle hemorrhoidal vein drains into it.

Operation in this case is absolutely contraindicated. The patient has been under observation for more than two years and a half, and it will be interesting to learn what the final outcome will be.

The accompanying illustrations give an idea of the appearance of the superficial veins in the left lower extremity.

153 Clinton Street.

VAS LIGATION FOR THE PREVENTION OF PREOPERATIVE AND POSTOPERATIVE EPIDIDYMITIS *

J. A. C. COLSTON, M.D.
BALTIMORE

In all operative procedures on the bladder or prostate gland, epididymitis is a frequent and often a troublesome complication. Particularly is this the case in dealing with patients suffering from prostatic obstruction, either of the benign or of the malignant type. It is, of course, a well known clinical fact that epididymitis may arise at any time throughout the course of prostatic obstruction; and, while it is rarely a dangerous complication, it plays an important part in increasing the length of hospitalization of the patient and usually has a markedly depressing effect on the morale. In some extremely sick patients with lowered resistance, the added effect of this infection may prove to be too much for the individual to withstand, and in such cases, fortunately rare, the fatal outcome may be directly attributed to the added burden of the epididymitis. Then, too, in the very rare case in which a blood stream infection develops, either during the preparatory treatment or postoperative course, the septicemia often appears directly after the epididymitis, so that in some of these cases, at least, the epididymis may be considered as the portal of entry of the infection into the circulation.

In recent years many urologists have recognized the importance of the prevention of epididymitis, and for this purpose a growing number have advocated vas resection or vas ligation.

The recent literature of the subject has been presented by Goldstein,[1] who operated on a series of fifty

* From the James Buchanan Brady Urological Institute, Johns Hopkins Hospital.

1. Goldstein, A. E.: Bilateral Ligation of the Vas Deferens in Prostatectomy, J. Urol. **17**: 25, 1927.

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unselected patients, twenty-five with preliminary ligation, and twenty-five without. Of the twenty-five unligated, 20 per cent developed epididymitis, a figure that corresponds accurately with statistics given by other writers on the subject. Among the twenty-five ligated, only one (4 per cent) developed a very mild epididymitis, which resulted in no disability. This well planned clinical experiment proves without any doubt the efficacy of vas ligation as a preventive of epididymitis following prostatectomy. In Goldstein's opinion, the complication is about as frequent following the one-stage suprapubic, the two-stage suprapubic or the perineal technic, and statistics of other observers seem to bear out this impression.

As usually practiced, this procedure is carried out just before operation by exposing the cord on each side by a short incision, isolating the vas and either simply ligating it or resecting a small portion. Some writers believe that resection offers a surer method of prevention than simple division and ligation and, if the open operation is chosen, this method should probably be carried out, as it adds nothing to the difficulty or time of operation.

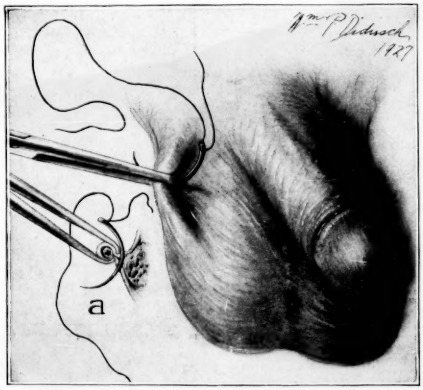
For the purpose of simplifying the procedure and avoiding the open incisions, with the possibility of infection, which is always present in the neighborhood of a suprapubic or perineal wound, the following technic was followed for the first time eighteen months ago, and has been used in a limited series of cases since that time.

A small portion of the skin of the scrotum directly over the cord is shaved and painted with Scott's solution [2] or other efficient skin disinfectant. The cord is then brought up to the skin and carefully palpated, and the vas isolated from the other structures, which are allowed to slip back. The vas is caught by two Allis clamps applied on the skin directly over it in such a way as to fix the vas up against the overlying skin and away from the other structures of the cord. It will be found quite possible to do this in practically every case unless scar tissue from a previous operation is present or unless a former inflammatory process makes accurate palpation impossible. A sharp needle threaded with silkworm-gut is then passed through the skin of the scrotum between the two clamps, carrying the needle as close to the firmly held vas as possible. The ligature is then tightly tied, the ends are cut short and subsequent dressings simply consist in daily application of antiseptic solutions. The ligatures are left in place for seven or eight days and then removed.

A small amount of reaction develops about the stitch, but in no case in our series has infection developed to such an extent as to require anything else than the simple antiseptic applications mentioned. In no case has hematoma or other evidence of injury to the cord developed, and I feel certain that this can always be avoided, provided a small needle is used and that it is passed through the skin as close as possible to the vas.

Local anesthesia is only rarely necessary, as the vas can be satisfactorily immobilized with the Allis clamps fixed in the first notch, and the passage of the needle and tying of the ligature can be done so quickly that the patient rarely feels more than the slightest sensation.

The procedure was first carried out in the operating room just before prostatectomy was undertaken, but the procedure was so simple that, at the suggestion of Dr. E. P. Alyea of the resident staff of the Brady Urological Institute, it was determined to try it on a limited number of patients entering the hospital for the purpose of undergoing prostatectomy. It is, of course, well known that a number of patients develop epididymitis from preliminary instrumentation and especially as a result of the infection that is always present about an indwelling catheter. Also it would not seem to be too much to assume that at least some of the infections that develop after operation may not have been caused by operation itself but may have arisen from a seminal vesiculitis or other deepseated infection which had in turn resulted from preoperative instrumentation. In any event, it would seem to be logical that the most efficient method for the prevention of both preoperative and postoperative epididymitis would be vas ligation before any urethral instrumentation had been carried out.



Vas deferens grasped by Allis clamp and needle passed as closely to vas as possible: *a*, cross section view of method.

The simple procedure that has been proposed can be easily carried out in the examining room or at the bedside as soon as the patient is admitted to the hospital. The vas is, of course, completely occluded, together with the lymphatics that surround it, and the mild inflammatory reaction that results offers a complete barrier to descending infection over the period of time during which the occurrence of infection is most probable.

A series of cases in which preliminary vas ligation has been carried out by the technic described has been analyzed by Dr. Alyea, and will be presented later.[3]

2. Scott's solution consists of mercurochrome-220 soluble, 2 Gm.; water, 35 cc.; alcohol (95 per cent), 55 cc.; acetone, 10 cc.

3. Alyea, Edwin: J. Urol., to be published.

Habitability of Submarines.—It has been found that carbon dioxide can be tolerated in much larger quantities than was previously thought, and that even when 3 per cent is present there may be very little or no indication of its effect on personnel except panting on exertion. There is a gradual and insidious absorption, which may not prevent the performance of general duties. Nevertheless, it has been found that after several hours of submergence the men become "dopy" and listless, characteristics of the effect of carbon dioxide. It has been noted that releasing oxygen from the cylinders will "pep up" the crew, but there is no neutralization of the increasing carbon dioxide in the blood.—Carpenter, D. N.: U. S. Nav. M. Bull., January, 1928.

OPERATION FOR BOW-LEGS, SUBSEQUENT GANGRENE AND AMPUTATION

WILLIAM H. VAN DOREN, M.D.
AND
PAUL B. MAGNUSON, M.D.
CHICAGO

[NOTE.—The following is a statement by Drs. William H. Van Doren and Paul B. Magnuson relative to the case of a girl operated on presumably for the correction of bow-legs by Dr. Schireson, concerning whose record an editorial appears in THE JOURNAL, February 4, page 387. The report was prepared at the request of THE JOURNAL.—ED.]

Miss S. H. stated that she consulted Dr. Schireson regarding a scar on her left arm which was the result of a burn in childhood, and talked to him at the same time about some bowing that she thought she had in her legs. He advised her to have them both taken care of, and to that end sent her to the Osteopathic Hospital, where he operated on her, January 17. She understood that he was to do the operation, no other doctor being mentioned, and paid him $800 in advance for the operations.

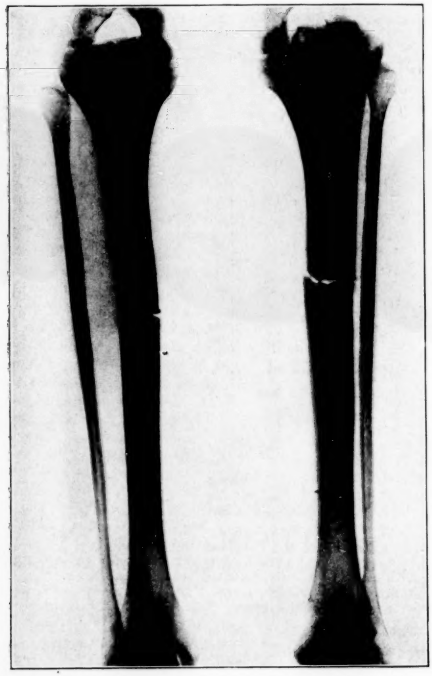


Fig. 1.—Appearance of limbs previous to amputation.

She said that after she had recovered from the anesthesia she was examined by Dr. Zaph. She asked the nurse who he was and was told that he was the man who helped Dr. Schireson do the operation. Dr. Zaph examined her legs, she said, touching them at various places and asking her if she felt anything. She said she could not feel anything in the legs after the operation, at least she was not conscious of his touching the skin on the legs at any point when he asked her.

Fig. 2.—The amputated limbs.

The family after a few days looked under the bandages, either with or without permission, and found that her ankles and feet were very much swollen and discolored. They became alarmed, but were assured that everything was going all right, that the patient was doing well.

January 25, the family called Dr. Van Doren and asked him to see the patient. This he refused to do unless called by the attending physician. The family prevailed on Dr. Zaph to call Dr. Van Doren, and Dr. Van Doren went to the Osteopathic Hospital on that day and found the girl with gangrene of the feet, involving the toes, the balls of the feet and the heels, and an area over the front of each tibia about 5 inches

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long and from 3½ to 4 inches wide. He asked what her blood count was and was informed that none had been made. He asked to see the roentgenograms; postoperative roentgenograms were shown to him, in which no changes in the angles of the bones were visible.

At the time of the operation there had apparently been a saw cut, supposedly with a circular saw, through about the middle of each tibia, and the sides of these cuts appeared in the roentgenogram to be parallel, and, show that there was no change in the long axis of the bone. The fibulas were not cut (fig. 1).

Dr. Van Doren advised moving the patient, and before the hospital authorities would allow her to be moved she was required to sign a release of the hospital and the doctors involved in the case.

She was seen within a few minutes after she was brought to Wesley Hospital—we are told it was not over thirty minutes from the time she left the Osteopathic Hospital until she arrived at Wesley. At that time the toes and balls of the feet were gangrenous and the heels were gangrenous, and patches of gangrene were over the front of each tibia; the incisions were open, draining a seropurulent material; there was marked swelling in the legs, which were surrounded about three fourths of their circumference by molded plaster splints which extended from the knee to the bottom of the foot.

The patient's temperature on admission was 104; white count, 26,250; hemoglobin, 65 per cent; red cells, 3,120,000. There was a trace of albumin in the urine.

The legs were put under an electric drum to supply warmth; the patient was given 25 cc. of 1 per cent mercurochrome-220 soluble intravenously; her temperature went to 106 within the next six hours and then dropped for twenty-four hours until it reached 100. In another twenty-four hours—that was Friday, January 27—the temperature again began to rise and the gangrenous area spread upward on the feet and legs, and the patient was told that it would be necessary to do a double amputation in order to save her life. After considerable urging by the family and about an hour's delay this was agreed to, and the patient was given spinal anesthesia and both legs were amputated just above the knee. She was then given 500 cc. of blood from a donor who had already been secured, and was returned to her room with a very moderate amount of shock. The temperature ranged downward for five days, when she had a secondary hemorrhage from the stump of the right leg. This was stopped by surgical procedure, another transfusion was done, and she has continued to make a steady improvement to this date.

The roentgenograms which are submitted herewith show that the long axis of the bone has not been changed by the saw cut; that the tibia is fully splinted and held in position by the fibula, which is attached to it above and below and has not been cut at any point. Therefore the angle of the tibia or the fragments of it could not be and are not changed by the saw cuts made at the time of the operation. The girl states that she did not have a roentgenogram taken before operation. Therefore it must be assumed that the bowing, if any, was largely apparent rather than real, being due to the muscles and fatty tissue on the outside of the legs and not to any actual bowing in the bone. The operation accomplished nothing except a streptococcic infection.

A dissection of the legs has not yet been made and it is impossible to say at this writing whether there was any injury to the blood vessels or nerves at the time of operation.

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BRACHIAL PLEXUS NERVE BLOCK

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Brachial plexus nerve block for operations on the arm is a form of regional anesthesia that has apparently found little favor in this country. This fact is somewhat surprising, as the procedure offers quite as striking advantages in its field as does the analogous sacral nerve block so popular in genito-urinary surgery. The most recent report, and in fact the only report other than those in specialized textbooks of the clinical application of brachial plexus block is that of Livingston and Wertheim.[1] They summarized the results in 1,000 cases reported in foreign journals, and

Result of Operations Under Anesthesia Produced by Brachial Plexus Nerve Block

Number of Cases	Lesion	Result and Comment
1	Palmar abscess.....	Patient had some pain during multiple incisions and insertions of tubes and drains, but did not need any other anesthetic.
1	Amputation of thumb	Patient an old man whose subclavian artery arched unusually high; paresthesia not obtained on insertion of needle; augmented by subcutaneous infiltration round base of thumb.
17	Closed reduction fracture of lower end of radius	In all, perfect anesthesia was obtained except in one, which was the first case attempted; this was an impacted Colles fracture in an old woman, and was reduced after infiltration round site of fracture.
8	Closed reduction fracture of both bones of forearm	All perfect, including one in a child, aged 8
1	Closed reduction fracture of both bones of forearm (compound gunshot wound)	Perfect
5	Open reduction fracture of both bones of forearm	Perfect
1	Amputation of forearm	Perfect
1	Closed reduction fracture of elbow	Perfect
2	Closed reduction fracture of elbow (compound)	One perfect; one unsatisfactory in a child, aged 7
1	Reduction of dislocated elbow	Perfect
1	Fracture of olecranon	Patient an obese nervous woman in whom the landmarks were very obscure; anesthesia unsatisfactory
3	Amputation of arm above elbow	Two perfect, one satisfactory
1	Interscapulothoracic amputation for tuberculosis of shoulder joint	Combined with cervical plexus block, and paravertebral blocks of the second to eighth intercostal nerves; the brachial plexus was exposed with local infiltration and injected under direct vision, at the preliminary ligation of the subclavian vessels; the anesthesia was good for two hours, after which the operation was completed in fifteen minutes under nitrous oxide anesthesia

added 105 of their own cases. Farr [2] has used the method many times. He states that it gives excellent anesthesia; its accomplishment is not difficult, and provided the injection is made slowly and with certain precautions, it is comparatively safe. The very satisfactory results that I have had with the procedure over a period of three years, and the scarcity of American reports, lead me to report my results in forty-three cases.

Four methods of approach have been described for blocking the brachial plexus: the paravertebral by Kappis; the supraclavicular by Kulenkampf; the infraclavicular by Louis Bazy, and the axillary by Hirschel. Of these methods, the supraclavicular approach of Kulenkampf offers the greatest advantages and is the

1. Livingston, E. M., and Wertheim, Hippolyte: Brachial Plexus Block: Its Clinical Application, J. A. M. A. **88**: 1465 (May 7) 1927.
2. Farr, R. E.: Practical Local Anesthesia, Philadelphia, Lea & Febiger, 1923.

only one with which I have had personal experience. The anatomic landmarks are better defined than with the paravertebral approach, and there is far less danger of encountering blood vessels than with the infraclavicular and axillary methods.

Kulenkampf described the supraclavicular approach in 1911. Braun [3] has given an account of the development of the procedure, and a clear description of the technic may be found in Labat's [4] book on regional anesthesia. I have followed Labat's directions with little variation in my forty-three cases with the results shown in the accompanying table.

In this series untoward effects attributable to the injection of from 10 to 20 cc. of 2 per cent procaine hydrochloride with epinephrine were not observed. Instances of subsequent paresis or paresthesia of the arm were not noted. In all cases, an attempt was made to obtain paresthesia in the arm before injection of the procaine hydrochloride solution. When this was successful, the anesthesia was certain. When paresthesia was not obtained after gentle probing with the needle, the procaine hydrochloride was injected more widely in the vicinity of the plexus, beneath the deep cervical fascia and over the first rib. This type of injection will in most instances give a satisfactory anesthesia, provided operative procedures are delayed about half an hour. On the other hand, the only incomplete anesthesias of the series occurred in those cases in which paresthesia was not obtained before injection. It is important that the needle should not be beveled sharply, so that the resistance of the deep cervical fascia may be overcome without definite perception. The sensation caused by piercing this fascia is nearly as definite as that evoked when the spinal dura or the external oblique aponeurosis is penetrated.

Patients in whom preoperative preparation was possible were given ⅙ grain (10 mg.) of morphine and 1/300 grain (0.2 mg.) of scopolamine. This medication usually makes a procedure of any duration much more easily borne. It is unnecessary for closed reductions of fractures in ambulatory patients.

When a cutting operation is to be performed, I have found it better to augment the brachial block with a "subcutaneous bracelet" of 0.5 per cent procaine hydrochloride just above the site of incision. In most cases this may be unnecessary, but the results in some of my first cases showed that the skin incision may be the only painful part of an otherwise painless operation.

The injection may be made when the patient is sitting or lying on his back. It is better as a matter of routine to keep the patient recumbent for about an hour after the injection. The injection of 20 cc. of 2 per cent procaine hydrochloride may be followed by symptoms associated with a fall in blood pressure. This is especially true when part of the solution has been deposited within a blood vessel. This effect of procaine hydrochloride outlasts the opposite transitory effect of epinephrine, and should be anticipated. In my series there was one patient who I thought showed a positive Goetsch test (epinephrine effect in hyperthyroidism). This was a woman who became very excitable, and had a tachycardia of about ten minutes duration immediately following the injection. Some patients who were more self-controlled or stoical I have allowed to walk a short distance to a fluoroscopic room.

There is one point on which I am not entirely in accord with Livingston and Wertheim. They state that "contact with the nerve trunks must be avoided. The cords of the plexus cannot be touched by the needle with impunity. Shock and injury to the fibers alike are invited by the practice of seeking paresthesias before injecting the anesthetic solution." I have not had any bad effects that I know of from seeking paresthesia. The plexus should be sought very carefully. The needle, disconnected from the syringe, is introduced and inserted in only one direction. If the position of the tip is to be changed, the needle is partially withdrawn and reinserted in its new position. Cooperation with an intelligent patient is necessary. The injection is made at the first sign of paresthesia, very slowly, and without moving the needle in a lateral direction. Physiologic sodium chloride solution is used as the solvent for the procaine hydrochloride.

In brief, brachial plexus nerve block offers a very satisfactory method of anesthesia for any operation on the arm. It embodies all the advantages of local over general anesthesia, and is particularly useful in the reduction of fractures. While careful attention to the anatomic landmarks and the proper equipment of syringe and needle renders the actual injection technically not difficult, there are three dangers to be guarded against: intravascular injection of procaine hydrochloride, injury to the pleura, and injury to the nerve trunks.

Severn Apartments.

3. Braun, H.: Local Anesthesia, Philadelphia, Lea & Febiger, 1924.
4. Labat, G.: Regional Anesthesia, Philadelphia, W. B. Saunders Company, 1923.

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FACTORS DETERMINING THE LOSS OF STRENGTH OF CATGUT WHEN EMBEDDED IN TISSUE *

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NEW HAVEN, CONN.

It has been customary, since the investigations of Lister, to treat catgut in such a fashion as to insure its persistence in the tissues for the time necessary for the thorough consolidation of the wound. This has been accomplished in great part by the chromicizing of the gut, and the intensity of the chemical reaction has been tested by the presence or absence of it as determined by histologic examination in the tissues of an experimental animal. It is customary to designate the product as ten day, twenty day or forty day catgut or otherwise to indicate the time that it may be expected to persist in the tissue.

Notwithstanding this, surgeons have observed under certain conditions that wounds supposedly well closed with such gut reopen, and that the gut has dissolved or has broken. It has been assumed that the reopening of the wound was the result of defective gut. However, testing of the "batch" by the manufacturer has uniformly revealed normal strength and adequate hardening.

EXPERIMENTAL TESTING OF CATGUT

It was with a view to explaining this discrepancy that the experiments described here were undertaken. Healthy adult dogs were used, and all operative procedures were carried out under full ether anesthetization and with strict aseptic technic. The animals were killed at the completion of the experiment. The catgut

* From the Department of Surgery, Yale University School of Medicine.
* The expense of this investigation has been defrayed by Davis and Geck, Inc.

employed was supplied by Davis and Geck, Inc., and was selected at random from the "boilable" commercial product.

It was thought that the histologic test of the persistence of gut was not adequate, for its strength might be deficient long before it had appreciably changed its appearance as determined under the microscope. Consequently, all tests as to the survival of the gut were made by determination of its tensile strength. A standard thread-testing machine was used for this purpose, which was sufficiently accurate to register the breaking strength within a maximum variation of half a pound.

The first experiments were directed at the persistence of gut in a wound healing without infection. The suture was threaded beneath the serosa of the stomach in sufficient length for subsequent insertion in the "thread-testing" machine. This site was selected as providing a vascular structure so far removed from the surface of the body that asepsis could be adequately

TABLE 1.—*Effect of Saline Solution on Chromic Sutures, Twenty Days at 37 C.*

	Normal Strength (Dry) Pounds	After 1 Day (Wet) Pounds	After 2 Days (Wet) Pounds	After 3 Days (Wet) Pounds	After 5 Days (Wet) Pounds
No. 3	18.2	15.7	15.3	16.6	14.8
No. 2	15.6	13.5	11.5	13.6	12.3
No. 1	10.1	8.5	9.7	9.9	9.7
No. 00	4.6	4	3.4	3.7	3.2
No. 000	5.1	3.4	2.6	2.7	2.8
No. 2 plain	20	14	10.5	9.3	9.3

TABLE 2.—*Effect of Blood Serum (15 cc.) on Twenty Day Number 2 Chromic Catgut at 37 C.*

	Normal Strength (Dry) Pounds	After 1 Day, Pounds	After 2 Days, Pounds	After 4 Days, Pounds	After 6 Days, Pounds	After 12 Days, Pounds
Sterile serum	15.5	13.5	11.5	9.3	9.3	9.4
Serum infected with Staphylococcus albus	15.7	13	10	8.1	5.1	4

insured. Sufficient observations were made on other anatomic structures to ascertain that the results were in general the same.[1]

The results of these experiments show that the tensile strength of gut, whether plain or chromicized, undergoes a progressive diminution from the time of insertion until its final disappearance. The plain gut shows a rapid disappearance, the number 00 having lost half its strength in thirty-six hours (chart 1), and the larger sizes nearly as rapidly. With chromicization the decrease of strength takes place less rapidly and with a certain amount of lag at the beginning of the curve. Essentially, however, the depreciation in strength can also be represented by a straight line.

As the removal of any foreign body is accomplished by the direct action of the intercellular fluids or of the cells, it seemed of importance to study these two factors in relation to catgut. Consequently, experiments were performed of which the examples given in tables 1 and 2 are illustrative.

It is apparent that the presence of excess fluid alone will depreciate the strength of catgut. That this is a physical rather than a chemical phenomenon seems probable because of its rapidity, the nature of the agents employed, and the return to normal strength on drying. If the fluid is such as to produce hydrolysis, a chemical reaction, the change is more striking and permanent. Gastric juice gives the following results:

Catgut within the lumen of the dog's stomach: Plain, number 00, 0 and 1, tensile strength, 0 in twelve hours; chromic twenty day, number 1, normal strength, 12 pounds: in twelve hours, 6 pounds; in twenty-four hours, 2½ pounds, and in thirty-six hours, 0.

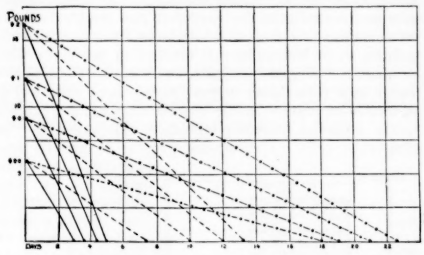

Chart 1.—Decrease in the tensile strength of catgut in a noninfected wound: solid line, plain catgut; broken line, ten day chromic; line with circles, twenty day chromic.

An exudate consisting almost completely of polymorphonuclear leukocytes can be obtained by the injection of a glucoside, aleuronat, into the pleural cavity of an animal. The effect of such an exudate is shown in table 3.

The most ready method of duplicating in the experimental animal the infected wound in man is to pass a suture in and out of the skin of the dog, so that portions of it are exposed to the infection occurring at the site of the needle puncture. Under ordinary methods of preparing the skin, the infecting organism is *Staphylococcus albus*. In such an infected wound, the tensile strength disappears about as rapidly as it does in gastric digestion (chart 2).

COMMENT

The adoption of catgut was in answer to the demand for an absorbable suture as contrasted with an unabsorbable material such as silk, which Lister thought he had demonstrated to be irritative to tissues. Attempts at the introduction of the absorbable suture, notably by Young and Physick, were abortive, for the antiseptic and aseptic treatment of wounds was unknown in their time. Only after the development of "listerism" was it practicable to bury any type of a suture within a wound, and because most wounds had become surgically clean and healed by first intention, the gut ligature was standardized for that type of healing. Therefore,

TABLE 3.—*Effect of Glucoside on Twenty Day Chromic Number 2 Catgut*

	Normal Strength (Dry) Pounds	After 1 Day (Dry) Pounds	After 2 Days (Dry) Pounds	After 5 Days (Dry) Pounds	After 11 Days (Dry) Pounds
Sterile aleuronat exudate changed every day (15 cc. at 37 C.)	15.5	10	9.5	7.3	3
Sterile aleuronat exudate not changed (15 cc. at 37 C.)	15.7	11.7	11.8	10.5	7.2
Aleuronat solution, sterile (15 cc. at 37 C.)	16.1	14.2	10.2	10.2	9

In pleural cavity with exudate after twenty-four hours, 6½ pounds (10 cc. of aleuronat solution injected).

1. These experiments will be reported in detail at a later time in connection with studies on the healing of wounds.

the commercial product of today has certain sustained tensile strength in tissues which are not seriously devitalized or infected. How well this has been adjusted to the demands of the situation is shown by the experiments illustrated in chart 1.

That it behaves differently under different circumstances is not surprising, and the most important of its characteristics is that it is rapidly destroyed in an infected wound and does not persist to act as a foreign body, as do unabsorbable materials. This absorbability is due essentially to the fact that the greater bulk of its substance is collagen, which is easily converted into gelatin, and which in turn is broken up into absorbable products. Collagen is colloidal in its nature and absorbs water to a remarkable degree, at the same time losing in tensile strength. In the tissues, enzymes are carried to the point of irritation and there discharged by the phagocytic cells. The amount present is directly proportional to the intensity of the phagocytic action, and that in general to the degree of irritation. Catgut in itself is irritative in proportion to the amount present, but under ordinary conditions it is not markedly so. When accompanied by pyogenic bacteria, for which it forms a nidus for growth, it becomes a most potent irritant, as do the bacteria themselves. Under these circumstances, the absorption of the gut is greatly intensified, and it is soon reduced greatly in its tensile strength.

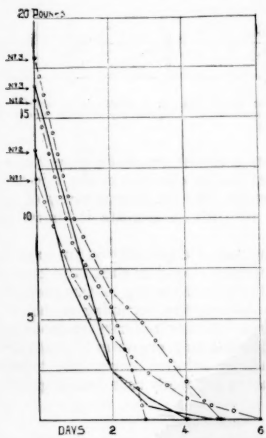

Chart 2.—Decrease in the tensile strength of catgut in an infected wound: solid line, plain catgut; line with circles, twenty day chromic.

There are, then, two factors which must be guarded against if catgut is to function normally: First, a wet wound. Traumatization of a wound leads rapidly to edema and to oozing of serum into the wound as well as into the surrounding tissues. The presence of blood within the wound will act in the same manner. Incidentally, trauma and hemorrhage are two most important factors in the induction of infection. Second, an infected wound. It is not necessary in this paper to discuss the measures for the prevention of this condition. However, although trauma and hemorrhage can be controlled, infection many times cannot be, and under such circumstances the surgeon must foresee that the catgut may lose its tensile strength and that the wound may open. In such instances, the use, in addition, of a removable nonabsorbable tension suture is a matter of good judgment. If this is not done, disastrous results may occur. When a reliable catgut has been employed in the first place, such an outcome is not referable to the suture material that was used but rather to the lack of skill and judgment on the part of the surgeon.

SUMMARY

Surgical catgut in wounds healing by first intention retains its tensile strength to the degree that is customarily expected of it.

In the presence of fluids such as physiologic sodium chloride solution, or of blood serum, the tensile strength is moderately diminished.

In an inflammatory exudate composed in large part of phagocytic cells, plain or chromicized catgut, practically irrespective of size, loses tensile strength with great rapidity.

Great care in handling tissues, strict hemostasis and absolute surgical asepsis are essential in the use of catgut.

When infection is foreseen or when the premature loss of tensile strength in the catgut would be disastrous, removable nonabsorbable tension sutures are indicated as an adjunct in the closure of the wound.

330 Cedar Street.

TUBERCULOSIS AMONG YOUNG WOMEN

PRESENT RELATIVE INCREASE IN THE MORBIDITY AND MORTALITY *

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NEW YORK

In 1927 I [1] ventured to call attention to the relatively greater mortality from tuberculosis among young girls between 16 and 19 as compared with boys of the same age. This situation was revealed by the New York statistics.

Since the publication of that article I have learned that in other large cities there has also been observed an increase in the morbidity and mortality of tuberculosis among young women. A general verification of this comes to us from Dr. Dearholt of Milwaukee who, a few months ago, reported that for the first time in the history of the Wisconsin Tuberculosis Association all the state's twenty sanatoriums are filled with patients, with long waiting lists at many of them, this situation being due to the increase of tuberculosis among young girls. Concerning the actual tuberculosis mortality among young women, I was fortunate enough to obtain accurate and recent statistics through the courtesy of Mr. J. G. Drolet of the New York Tuberculosis and Health Association, which show that for last year the mortality from tuberculosis among young girls between the ages of 16 and 19 was nearly twice as high as among the boys. In the year 1926 in New York City there died from all forms of tuberculosis 257 girls and only 139 boys between the ages of 15 and 20, and between the ages of 20 and 25, 369 women and 293 men. From the very complete statistics kindly furnished me by Dr. Matthias Nicoll, Jr., the New York State Commissioner of Health, the difference between New York City and the rest of the state in the movement of the tuberculosis mortality among young people during the last twelve years is shown by a comparison of the average annual decline of the death rate (percentage of the average annual rates): New York City—15 to 19 years: males, 7.4 per cent; females, 2.6 per cent; 20-24 years: males, 6.1 per cent;

* Read before the Medical Society of the County of New York, Dec. 19, 1927, and before the Third Race Betterment Conference at Battle Creek, Mich., Jan. 4, 1928.

1. Knopf, S. A.: Essentials in the Prevention of Tuberculosis in Infancy and Childhood, J. A. M. A. **88**: 1058 (April 2) 1927.

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females, 4.1 per cent. Rest of state—15 to 19 years: males, 4.9 per cent; females, 1.3 per cent; 20 to 24 years: males, 5.5 per cent; females, 2.3 per cent.

In Baltimore the tuberculosis death rate among the female white population between the ages of 15 and 19 during the years 1910-1926 was 145 for 100,000, while in the males at the same age it was 115. Between the ages of 20 and 24 the difference was still more pronounced, being 235 in the female and only 180 in the male.

Concerning the death rate from tuberculosis in Cleveland, Howard W. Green [2] makes the following report:

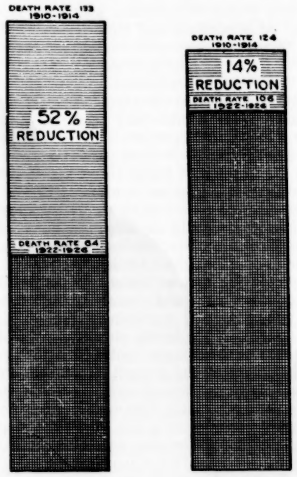
> Because so large a percentage of the female deaths are due to tuberculosis between the ages of 15 and 30 years, and because of the fact that between 1910 and 1926 a similar reduction to that of the male was not experienced in the female death rate for the age groups 15 to 19 and 20 to 24 years, concentrated efforts must be directed toward the consideration of the causes and prevention of tuberculosis with special reference to girls between 15 and 25 years of age.
>
> The death rates for the male and for the female between 15 and 25 years are much the same up to the year 1918, but since that time the male death rate has decreased much more rapidly than the female death rate. This reduction has placed the male death rate at the present time lower than the female death rate. The average female death rate of 124 for this age group for the years 1910 to 1914 was reduced to 106 for the years 1922 to 1926, a decrease of 14 per cent, while the male death rate, which was 133, was reduced to 64, a reduction of 52 per cent, during the same period. These reductions are shown graphically in the accompanying chart.

In view of claims that the general morbidity and mortality of tuberculosis have been decreased by more than 50 per cent during the last thirty-five years, these comparative reports are decidedly depressing. Dr. Dearholt ascribes the increased mortality among girls between 15 and 25 to the flimsy modern dress and he thinks that the mortality from tuberculosis among young women would be cut down if dress reform could be encouraged. There is no doubt that Dr. Dearholt is right in his belief that insufficient protection of the body by suitable clothing is in a measure responsible for the contraction of so-called colds due to invasion by *Micrococcus catarrhalis* or the influenza or pneumonia germs. The field for the umbiquitous tubercle bacillus is thus prepared. However, I believe that besides this chilling of the body by insufficient clothing there are other reasons for the increase of tuberculosis among young women.

There is first the almost insane desire of so many of them to have a slender figure. To attain a boyish appearance, they will voluntarily submit themselves to actual undernourishment. Very many of those who have fallen victims to tuberculosis have been hard-working employees in factories, workshops or offices, with good appetites, but who, in order to lose or not put on any weight, content themselves with an ice cream cone, a cup of coffee or a sandwich at luncheon time, hastily swallowed. They do not make up by a substantial breakfast or a good dinner for what they have missed at luncheon. The result is inevitably a strong predisposition if not the development of a hitherto latent tuberculosis. Of course, the heartless or thoughtless employer who does not allow his employees a reasonable time for luncheon is also to blame for these hasty and scanty meals.

2. Green, H. W.: A Graphical Analysis of the Trends in the Tuberculosis Death Rate, Cleveland Health Council, 1927.

To the flimsy dress there is added the tightly laced brassière or wide elastic band, tightly adjusted over the breasts to increase the boyish appearance and the stooping attitude particularly affected by high school and college girls. This posture (college slouch) and the restriction of the respiratory movement by brassière or band results in an insufficient amount of air entering the upper lobes and apexes. Excessive cigaret smoking [3] and insufficient sleep because of too much night life are contributing factors not only to the development of tuberculosis but also to other infectious or nervous diseases. No one would wish to deny all pleasure to the hard working girl, but extremes must be avoided in order to retain health. The continued compression of the mammary glands may also seriously prevent their natural physiologic development and inhibit their function when the young woman becomes a mother.



A comparison of the reduction of the male tuberculosis death rate per hundred thousand with the female rate for the age group 15-24 years between 1910 and 1914 and 1922 and 1926, at Cleveland; white.

It would be obviously unfair not to state that the increased sick rate among our young working women is also due to the fact that so many of them work and live in unhygienic environments. Many a catarrh or more serious trouble of the respiratory system has been contracted in the overheated dry atmosphere of office or workroom, the latter in addition often dust laden. Winslow of Yale has definitely shown that 66.5 F. in classrooms showed 18 per cent less respiratory diseases among pupils in attendance than when the average temperature was 68.5 F. When the temperature in workroom or office exceeds 68 F., something should be done. No office, class or workroom should be without a thermometer. Where the workers are exposed to the inhalation of too much vegetable or mineral dust, the installation of modern electric dust collectors should be made obligatory by law. In all large centers, associations for proper housing of working girls should be active and publicly and privately supported.

3. Freudenthal, Wolff: Tobacco: Its Relation to the Upper Respiratory Tract, Laryngoscope **37**: 217 (March) 1927.

A somewhat more remote cause of the frequency of tuberculosis among young girls, and also boys, is the utter lack of sanatorium facilities for the adolescent. Obviously, children between 12 and 15 cannot be kept in preventoriums where both sexes are treated prior to adolescence, and because of their youth they are not admitted to sanatoriums for adults. Another remote but not less important cause that must be borne in mind if we really wish to conquer tuberculosis is the almost total absence of infantoriums; that is to say, institutions where children of tuberculous parents, so often predisposed to the disease, if not already infected, can be treated from the earliest possible moment after their birth until they are cured or their predisposition mastered. Calmette's [4] method of immunization is a harmless and seemingly very effective means to help solve the problem concerning tuberculous infants, while treatment of course can best be carried out in an institution.

The first typical infantorium was made possible for the states of New York and New Jersey by the efforts of Dr. Alfred F. Hess at Farmingdale, N. J., but the enterprise had to be abandoned recently for lack of funds. Yet, to my mind,[1] such infantoriums should be in operation at least in all large centers of population.

A healthy foster mother may be the ideal for a child born by a tuberculous mother, but such foster mothers are hard to procure. A child predisposed to tuberculosis, or having it in a latent form, may reach adolescence without the slightest symptoms of the disease; but if at that time it is subjected or subjects itself to malnutrition, insufficient clothing, hard work, irregular hours and insanitary environments in general, tuberculosis is almost bound to develop.

To remedy the serious situation manifested by the increased morbidity and mortality of tuberculosis among young people, particularly the girls, reliance must be placed on the family physician, who should do all he can to counteract the foolish desire to grow thin to the detriment of the general health and endurance. He should insist on rational dress according to season and the avoidance of all chest-restricting bands.

Annual physical examination of all the members of every family should become an indispensable custom and it is to be hoped that it may become obligatory in the near future. However, my experience with tuberculosis has taught me that an annual examination of individuals between the ages of 15 and 30, the most susceptible age when our death rate from that disease is highest, is not sufficient. There must be a careful semiannual health examination if we would wish to decrease tuberculosis among the young persons, and particularly among the girls, where the tuberculosis morbidity and mortality is really alarming. I have discovered distinct physical signs, accompanied by slight but characteristic symptoms, indicating an early tuberculous invasion, in young people who had been declared in perfect health by skilled examiners seven or eight months before. To counteract the slouchy, bent-over posture, let these young people be impressed with the fact that to walk, stand and sit straight, to assume a proper posture all the time, is not only more healthful but more becoming. When the work of the young women demands sitting, employers should see that properly constructed chairs are provided. These young girls must also bear in mind that well developed breasts are an addition to a graceful figure and that when motherhood comes they will be in a better condition to nurse their children. Some young women carry their desire for a flat chest to such an extent that they are afraid to take a deep breath. They should be taught that, particularly when outdoors, to breathe deeply and do it often is the best way to develop good, sound lungs. Let them, above all, realize that a little overweight at their age is not as dangerous as 10 or 15 pounds underweight, and that a good appetite at noon time should be satisfied. Employers should give their employees at least forty-five minutes or, better yet, one hour for luncheon.

While the moderate exposure of the throat and the upper anterior portion of the chest may not be at all injurious and perhaps even advantageous in hardening the system against "contracting colds" (our sailors dress similarly in the coldest weather), the exposure of the shoulders and arms is doubtless often responsible for chilling the body in cold weather. The style of evening dresses worn by women of leisure, and also frequently by working girls, is doubtlessly responsible for many a bronchitis or more serious pulmonary trouble. These modern evening dresses are not only décolleté in front but often expose almost the entire length of the spinal column, with its relatively thin covering of muscular layers. The extreme shortness of the women's everyday dress, the thin silk stockings and low shoes, worn in the coldest weather while the other portion of the body is wrapped up in thick woolen or fur coats, must also be considered a contributing factor to the deplorable death rate among young women. The narrow skirt and the absurdly small but very high heel on the otherwise low shoes are of course a great hindrance to the natural gait. The high heel is responsible for many a twisted ankle and often more serious orthopedic trouble. A vigorous walk in the fresh air, which every indoor worker should take at least once a day, is made utterly impossible with such absurd footgear.

Unfortunately, the majority of families are not seen regularly by a physician who could give advice for the prevention of disease, and even if there is a family physician he is rarely consulted until there is real trouble, when rouge and lipstick can no longer hide the anemic condition, the cough cannot be suppressed, the loss of weight becomes emaciation, and other symptoms make a serious state of health evident to family and friends. To solve a problem of such magnitude as the situation presents, it requires not only a semiannual health examination and sound medical advice, but also the cooperation of the mature and sensible women in every calling, who, by their manner of dress and bearing, should show the fallacy of the dress and manners so many young women seem to be addicted to nowadays. While the present mode of women's dress has many advantages over most of those of the past, the long trailing skirts, the many petticoats, the flannel underwear, extremes in either direction should be avoided.[5] Kindly advice by mothers and also by teachers, ministers, directors or girls' scouts and officers of girls' clubs may accomplish much toward a rational dress reform, and thus aid the medical profession in its desire to prevent the alarming morbidity and mortality from tuberculosis among our young women.

Among girls in high schools and colleges, where the curriculums are often so extensive as to be detrimental to good physical and mental development, reform in this direction is also an urgent necessity.

4. Calmette, Albert: Prémunition des enfants nouveau nes contre la tuberculose par le vaccine B C G, Ann. de l'Inst. Pasteur **40**: 89 (Feb.) 1926.

5. Knopf, S. A.: Dress Reform in Its Relation to Medicine, South. California Pract. **4**: 345, 1888.

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Lastly, well meaning and well-to-do fellow citizens should aid municipal authorities in the establishment of infantoriums for the offspring of tuberculous parentage, and preventoriums for the adolescent of both sexes; also sanatoriums for adults where these do not already exist, so as to accommodate all the consumptive poor and those of moderate means who cannot be successfully treated at home. Let us do all we can to save the hard working girl from an untimely death from tuberculosis. But she too must do her share and learn to lead a healthful and normal life. Thus my plea is for and to the young women of America, the future mothers of the nation. May it not be in vain.

16 West Ninety-Fifth Street.

AN EPIDEMIC OF ALBUMINURIA*

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WASHINGTON, D. C.

Army Regulations 40-105, "Standards of Physical Examinations," prescribe that "the term 'albuminuria' will not ordinarily be used as a cause for rejection, nor does its presence alone justify a diagnosis of nephritis. . . . When albumin is constantly or intermittently present the underlying pathological condition must, if possible, be determined and stated as the cause for rejection, but if albuminuria is present daily during a period of six days it should be stated as the cause of rejection, even if the origin cannot be determined" (par. 82).

No exception is taken to the provisions of this regulation, but it is thought that some good and physically sound men, as well as the seriously diseased, may be excluded from West Point and from the army by the application of the last sentence quoted. This opinion is based on the experience of annual physical examinations of officers and cadets at West Point in the years 1924, 1925, 1926 and 1927. It is also believed that medical men in general do not realize the occasional prevalence of albuminuria in otherwise healthy men, or its frequent insignificance. For these reasons, the account of the experience at West Point in the years indicated is believed to have a general value. Without attempting a broad summary of the extensive literature on albuminuria, it may be stated that certain writers have from time to time called attention to the high incidence of the symptom in certain groups, and I cite a few of those whose articles have appeared and come under my observation during the period covered by the experience here reported.

McNabb and Field[1] report three examinations, within a period of two weeks, on 417 men of from 17 to 24 years of age. The urine of 45 per cent of these young men showed albumin, when heated and tested with acetic acid, on at least one examination. In 4.5 per cent there was "persistent" albuminuria; that is, it persisted during two weeks. These authors found evidence of impaired function in such cases. They also found the appearance of albuminuria related to exercise. Neither of these things was usually true in the series here reported.

Thomas Addis,[2] in discussing the clinical classification of nephritis, tells of the hemorrhagic forms of glomerular nephritis which often escape notice and may clear up entirely. This type may include some of the cases of albuminuria here reported.

J. W. Russell[3] calls attention to the fact that orthostatic albuminuria is frequently a phase of scarlatinal or diphtherial and possibly other forms of nephritis, the sequence being constant albuminuria, orthostatic, none. This sequence has been observed in some of our own cases of albuminuria of unknown cause.

George Baehr[4] writes of the benign and curable form of hemorrhagic nephritis often associated with sore throat, and says that the urine may be normal except for the presence of albumin and blood cells, the kidneys able to concentrate urine, the patient's general condition good, the blood pressure normal, edema absent, and the blood tests, Mosenthal tests and phenolsulphonphthalein elimination all normal. Baehr thinks that tonsillectomy offers excellent prospects of cure, although it may result in increase of blood in the urine for a day or two. Some of our patients with similar cases of albuminuria have been subjected to tonsillectomy and in a few the condition has cleared up afterward. The proportion of cases, however, in which there was recovery has not been higher nor the time required for recovery less than in cases in which tonsillectomy was not performed, and most of our cases do not appear to have any relation to tonsillitis, although otherwise like Baehr's cases.

Calvin, Isaacs and Meyer[5] write of the prevalence of albuminuria in children. They quote Laucher as having found that in 5,000 children 6.7 per cent of those from 6 to 7 years of age, 27 per cent of those from 10 to 11 years, and 38 per cent of those between 15 and 16 years showed albuminuria. Calvin and his associates report on two groups of children. One group consisted of children from 2 to 16 years of age and having poor care, 60 per cent of whom showed albuminuria. The other group was of children from 6 to 16 years of age and having excellent care, only 15 per cent of whom showed albuminuria. The authors classify benign albuminurias as: (*a*) malnutrition albuminuria, often associated with anemia, underweight and basal heart murmurs, and frequently due to focal infections; (*b*) orthostatic albuminuria, related to posture, and (*c*) idiopathic or "growth" albuminurias, including those described as juvenile, pubertal, cyclic, transitory or intermittent.

It is not believed that any case in our series could be attributed to malnutrition; very few cases were orthostatic, and it seems probable that the so-called pubertal, juvenile, growth, transitory, intermittent albuminurias are not different from the equally temporary and harmless albuminurias found in older persons with considerable frequency.

Philip S. Hench[6] says that 5 per cent of 60,000 healthy soldiers and 5 per cent of 5,000 healthy students presented albuminuria, while among the sick the ratio is much higher, being 39 per cent in the Mayo Clinic, although only 40 per cent of these had any renal lesions. He says that functional albuminuria includes mainly that appearing in healthy persons after exercise and

* Published with permission of the Surgeon General, U. S. Army, who is not responsible for any opinion expressed or conclusions reached herein.

1. McNabb, P. E., and Field, C. W.: Mil. Surgeon **55**: 73 (July) 1924.

2. Addis, Thomas: Clinical Classification of Bright's Diseases, J. A. M. A. **85**: 163 (July 18) 1925.

3. Russell, J. W.: Lancet **2**: 683 (Oct. 3) 1925.

4. Baehr, George: Benign and Curable Form of Hemorrhagic Nephritis, J. A. M. A. **86**: 1001 (April 3) 1926.

5. Calvin, J. K.; Isaacs, Bertha L., and Meyer, Jacob: Albuminuria in Children, J. A. M. A. **86**: 1821 (June 12) 1926.

6. Hench, P. S.: Practical Considerations of Renal Physiology and Function, J. A. M. A. **87**: 8 (July 3) 1926.

exposure to cold, and orthostatic albuminuria, but that prostatitis may occasionally cause it. Such is not apparently the case in the series here reported.

Girard[7] reports two cases of well established orthostatic albuminuria in young women, each with a history of observation extending over a period of years, in which the condition entirely disappeared with pregnancy, while the patients were being watched with special care. The condition was ameliorated early and permanently. Girard thinks the trouble not due entirely to posture but probably in large part to some lack of development which was overcome by the rapid development resulting from the pregnancy. Possibly the moderate excess of incidence of albuminuria in young persons is due to developmental delay of unknown causation.

THE HUMAN MATERIAL CONSIDERED

The observations here reported were made on officers and cadets at the U. S. Military Academy at West Point. The average number of officers was very close to 200; the cadets numbered 1,150. About 25 per cent of the personnel changes annually.

All are men who were originally selected as sound and free from disease; all are required to have an annual physical examination of a searching character, and all are entitled to and receive free medical treatment, in the hospital if the condition is of any severity. All are well fed, well clothed and well housed, and all take regular exercise. The officers live in their quarters and do much as they please. Cadets live in barracks and their hours are regulated to a degree unknown in civil life, the use of all hours from 6 a. m. to 6 a. m. being prescribed by schedule as classroom periods, study periods, exercise periods (gymnasium or outdoor athletics), drill periods, meal periods, hours for sleep, and free time, which last may be spent as the cadets desire. They are not allowed to go outside prescribed limits. They eat in a common mess and their food is good and abundant, the allowance for raw food being 80 cents per man daily, exclusive of the cost of preparation and service. Smoking is permitted and is general; drinking is prohibited and is rare. The cadet's habits and environment are much above the average for college men, so far as factors believed to be disease-producing are concerned.

Officers varied from 25 to 64 years of age, the majority being between 30 and 40 years. Cadets were from 17 to 25 years of age, the average being 20 or 21 years.

The tests used were the nitric acid contact test and the heat and acetic acid test, neither remarkably sensitive.

TIME OF EXAMINATION

Army regulations prescribe that the annual physical examinations shall take place in January or as soon thereafter as practicable. The officers were always examined in January and the cadets in February, March and April of 1924, 1925 and 1926. In 1926, authority was obtained to change the examination of cadets so as to make that of two classes, the first and third (corresponding to senior and sophomore classes in college) come in the month of August, when both classes are in summer camp. This was done for the reasons that the late winter and early spring months are seasons of much sickness and of hard academic work, and therefore times at which physicians are unusually busy, even without the burden of work occasioned by these examinations, and cadets are particularly apt to suffer from eyestrain and to make unusually poor showings in the tests for vision, while examinations in August come when physicians have more time and cadets have been freed from academic work for two months. Furthermore, it was thought that season might be influential in the causation of albuminuria. The results of the August examinations in 1926 were such as to lead me to have additional examinations made of the urines of men of the fourth class in the autumn of 1926. I am therefore reporting from two to six examinations on each of the 1,115 cadets at the academy, Jan. 17, 1927, and one examination each on the 405 men who graduated in 1924, on the 245 who graduated in 1925 and on the 152 who graduated in 1926.[8]

I am also reporting on from one to four examinations on each of 352 officers. The total number of persons concerned is therefore 2,269, all examined when doing duty and apparently in good health. The number of routine examinations of urine (not counting those made during hospitalization or periods of special observation or study) was 5,855, prior to August, 1927.

Of all these, 360 men showed albumin 440 times. Almost 16 per cent of all these men had albuminuria at some time; slightly more than 7 per cent of the specimens of urine examined showed it. But it should be noted that five sixths of all cases occurred in the two years 1925 and 1926, and almost two thirds in 1926.

In 1924, albuminuria was not noticeably prevalent. The retained records of 177 officers examined that year do not show any instance of albuminuria; but, as some retained records are incomplete, it cannot be stated that there was none. If any, the cases were few.

In the first class of cadets at that time, consisting of 406 men, two had intermittent albuminuria, without casts or blood on microscopic examination. In the fourth class at that time, now the first class, only one man of the 206 now remaining then showed albuminuria. In a total of 612 cadets there were only three cases of albuminuria, and the incidence rate among officers was probably no higher.

In 1925, twenty-one officers, or 10.8 per cent, and 5 per cent of cadets showed albuminuria on the first examination. One of the officer cases was known to have presented albuminuria since 1923, and to show a fixed low specific gravity and moderate nocturnal polyuria. His case is not considered as belonging to the large group discussed.

At the time of the annual examination of 1926, the condition was even more prevalent among cadets. It appeared to be epidemic, and in April, I reported in regard to it as follows:

> For reasons at present unknown, or at most surmised, there has been a very large amount of albuminuria at West Point this year. Eleven per cent of officers showed it on their annual physical examinations and 17 per cent of the first class. As the condition was or is intermittent in almost all cases, and as a man showing a normal urine on the first examination did not have the urine reexamined, it is probable that the number having the condition at some time was considerably larger. While I do not know the cause of this unusual prevalence of albuminuria, I am at present inclined to think it due in large part to exposure to cold. I have considered the following as possible causes:
>
> (*a*) Posture: This has received special attention during the past year and should be less apt than in previous years to cause albuminuria, which is this year more prevalent than last, in the proportion of 17 to 5. The urines were passed just after breakfast.

7. Girard, A., and others: Presse méd. **34**: 1254 (Oct. 6) 1926.

8. Since this paper was written, additional examinations have been made on the men of the classes of 1928 and 1930.

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(*b*) Diet: The diet of cadets is good, abundant and nourishing. It is the same this year as last, except that fewer eggs have been used for breakfast.

(*c*) Colds and influenza were prevalent at the time of the annual physical examination, but the men with albuminuria showed no higher rate of such infections than did the corps in general, and no more resort to sick report.

(*d*) Exercise: The examinations were made in February and March. Concerning the amount of exercise then taken, the Acting Commandant informs me that it was less than that taken in September, October, April and May, when intramural athletics are in force, less than in July and August, and probably slightly more than is taken in November, December and June. The percentage of men on athletic squads who showed albuminuria was somewhat smaller than the percentage of the corps as a whole.

(*e*) Exposure to cold: The cadets usually pass from barracks to class, class to barracks, and elsewhere in their daily walks, without overcoats, for the reason that the overcoat is so tight-fitting and cumbersome that they need assistance to get it on and they regard it as a nuisance. The season of the annual physical examination was this year colder than last and was generally the coldest of the winter. Reflex disturbance of kidney circulation by alternate exposure to high and low temperatures at present seems the most probable cause of the albuminuria.

As has been stated, permission was soon afterward obtained for examining the first and third classes in camp. The examinations were made in August, at a time of unusually hot weather, with the result that the idea of the trouble being due to exposure to cold was promptly knocked into a cocked hat, as albuminuria was found much more prevalent in the first class than in the spring. In the third class there was about three-fifths as much as there had been in the spring. The fourth (plebe) class was then examined in order to get larger figures and it was found to show exactly twice as many cases of albuminuria as on entrance examination the preceding March. At both seasons of the year the more persistent cases were taken into the hospital for study. The observations will be considered later.

In the spring of 1927, three classes were again examined, only twenty-six cases being found among 784 cadets. At the same time, there were seven cases among 205 officers. The epidemic had largely subsided.[9]

GENERAL CHARACTERISTICS OF EPIDEMIC

Duration.—In the large majority of instances, more than 80 per cent, the albumin was found in only one of these periodic examinations. It was found twice in 16 per cent of the cases and more than twice in 4 per cent. Among sixty-four cadets showing albumin at more than one examination, in only ten instances were positive results separated by a negative one. In all other cases positive results were obtained at consecutive periodic examinations.

Of the officers who had more than one examination, thirty-two showed albuminuria on only one examination, ten showed it on two and one on three, the multiple observations being obtained in all instances on consecutive examinations. It may be said, then, that the symptom is usually of brief duration; that in one sixth of all cases it may persist for six months or a year, and that in about 4 per cent of cases it may last longer. One of our cadets was known to have it in 1923, 1925, 1926 and early in 1927, after which it became intermittent and infrequent and by May, 1927, it had entirely disappeared.

Microscopic Observations.—In the large majority of instances the microscopic examination is recorded as "negative"; in many it is not recorded and was presumably normal. However, hyaline casts alone were noted in forty-one cases; hyaline and fine granular casts in forty-one cases; granular casts alone in fourteen; casts (not described) in one; red blood cells in fifteen, and spermatozoa in ten. Mention is made of the spermatozoa because one well informed medical officer expressed the opinion that seminal emission is often followed by albuminuria. It does not seem important in this series. When spermatozoa occurred the other conditions were negative, neither casts nor blood being noted. Blood was once present in one case in sufficient quantity to tinge the sediment. In all other cases it was detectable on microscopic examination only.

Other Observations.—It was customary, when albuminuria was found, to have the officer or cadet bring new specimens on five successive days. If the majority of these were negative and if the person was not a cadet of the graduating class, it was customary to stop examinations until after six months or a year. If albumin was present in all specimens, if blood cells or casts persisted or if the person was to graduate in a few months, he was taken into the hospital for more complete study, which included repeated careful physical examinations with special care in examining the teeth, tonsils, sinuses, genital organs and glands, in the measurements of the urine, in orthostatic tests, in the Mosenthal test, in phenolsulphonphthalein elimination tests and, in some cases, in a chemical determination of the blood sugar, urea nitrogen, uric acid and creatinine.

About thirty patients were taken in for such study and, except that three were found to have orthostatic albuminuria, some had had large or infected tonsils removed, and two or three single phenolsulphonphthalein elimination tests were below 50 per cent, the studies resulted negatively and indicated good kidney function in all cases.

Blood Pressure.—Blood pressure was normal in practically all of these cases in cadets. One man who has always shown a relatively high or unstable pressure (from 140 to 160 systolic) showed albumin at the entrance examination, but none at any of five later examinations. There have been two cases of severe essential hyperpiesis but they were not albuminuric.

Among officers showing albuminuria, only two have shown a systolic pressure as high as 140. One of these officers, now 34 years of age, showed albuminuria one year in four. The blood pressure at that time was 140 systolic and 92 diastolic.

The other, now 51 years of age, likewise had albuminuria one year in four. His blood pressure ranges from 140 to 160 systolic, and from 90 to 96 diastolic. The average blood pressure for fifty-one officers showing albuminuria in 1925, 1926 and 1927 was 126 systolic and 75 diastolic.

Tonsillar Infection.—Such infection is apparently without influence on the occurrence of the trouble. Tonsillectomies were performed on 143 of the officers and cadets covered by this report. Twenty-four, or 17 per cent, of them had albuminuria at one or more physical examination periods. Twenty of these showed it after operation and only eleven before. Seven of these eleven showed it both before and after operation, and four before and not after. On the other hand,

9. In August, 1927, the present first and third classes, numbering 530 men, were again examined. No man in the first class showed albuminuria and only ten in the third class, so that the total incidence at that time was less than 2 per cent.

thirteen persons showed it six months or more after tonsillectomy and not before the operation.

Of several patients subjected to tonsillectomy for the relief of albuminuria, not one was influenced to the extent that the albuminuria cleared up within six months.

Treatment.—None of the patients, other than those having the tonsils removed, received any treatment for the condition. Some of them underwent self-imposed restrictions of diet, the restriction usually being in flesh foods or salt, without noticeable effect.

REPORT OF CASES

Case histories in brief of seven of the more persistent cases are as follows:

CASE 1.—A cadet, examined in March, 1923, before admission to the military academy, was found to have albuminuria, without casts or blood. The following year albuminuria was not noted, but at all subsequent examinations it was found. This cadet has been carefully studied at various times. When he was admitted to the hospital in May, 1925, he was in apparently robust health. His height was 73½ inches (185.5 cm.); his weight, 175 pounds (79.4 Kg.), and the blood pressure 128 systolic and 70 diastolic. Physical examination was negative except for a persistent trace of albumin in the urine, and occasional granular casts. Phenolsulphonphthalein elimination was 45 per cent in two hours. The Mosenthal test was normal. The blood uric acid, nonprotein nitrogen, sugar and creatinine were all normal. Albuminuria was not orthostatic.

The patient was admitted to the hospital again, Sept. 6, 1925, still in excellent general condition. The blood pressure was 104 systolic and 66 diastolic. Albumin was constantly present but casts were found only once in twenty examinations. The Mosenthal test gave normal reactions; phenolsulphonphthalein elimination was 40 per cent in two hours; the blood uric acid, sugar, creatinine and nonprotein nitrogen were normal; the Wassermann reaction was negative; all surveys, including examinations of the teeth, sinuses, heart, eye, ear, nose and throat, stool and blood were negative. Albuminuria was not orthostatic.

The patient was readmitted for further study, April 26, 1926. At this time, the albuminuria was orthostatic, albumin being present in all evening urines and absent from all urines passed immediately on rising in the morning. Phenolsulphonphthalein elimination was 60 per cent. The Mosenthal test was normal. Five specimens of urine, taken from March 16 to March 20, were all normal. The cadet was readmitted, March 28, 1927. His general condition was excellent. The urine showed a trace of albumin in three of eight specimens recorded. Albuminuria was orthostatic, with no casts or blood in any specimen. The Mosenthal test was normal, and phenolsulphonphthalein elimination was 65 cent in two hours. All surveys were negative. Analysis of the blood in terms of milligrams per hundred cubic centimeters showed: blood sugar, 159 mg.; nonprotein nitrogen, 30 mg.; creatinine, 1.2 mg.; uric acid, 28 mg.

In May, 1927, this case had cleared up to the extent that no albumin was found on any of numerous examinations.

CASE 2.—A cadet, while in the hospital on account of acute, nonsuppurative myringitis, was found to have albuminuria in February, 1926. Blood was seen when the urine was examined microscopically. In September, 1926, when the patient was reexamined, the urine still contained traces of albumin in twelve of fourteen specimens, five of which also showed occasional red blood cells. He was examined monthly thereafter on five successive days each month, and the urine showed albumin in all specimens up to January, and red blood cells in most. Of five specimens taken in January, four showed albumin and two red blood cells. No blood cells were present in February. Three of five specimens examined in March, 1927, showed traces of albumin, but none showed blood.

When he was studied in the hospital in May, 1926, the patient was found to have a periapical abscess of a lower right molar, and the tooth was removed. Blood counts were normal and examination of the ears and sinuses was negative; the urine contained albumin and blood. The Mosenthal test gave normal results; phenolsulphonphthalein elimination was 60 per cent in two hours; the blood creatinine, nonprotein nitrogen, sugar and uric acid were all normal.

CASE 3.—In a cadet examined in the spring of 1926, albuminuria was detected. It was still present in August, and the cadet was then taken into the hospital for study. Of fourteen specimens of urine examined, ten contained traces of albumin and two contained a few fine granular casts. The Mosenthal test gave normal reactions, but phenolsulphonphthalein elimination was very high, reaching 90 per cent in two hours. The general condition of the cadet was excellent. Examination of five specimens each month gave the following results:

October, five specimens showed albumin, but no casts.
November, four specimens showed albumin, but no casts.
January, four specimens showed albumin, but no casts.
February, four specimens showed albumin, but no casts.
March, two specimens showed albumin, but no casts.

CASE 4.—At the annual physical examination of a cadet in March, 1926, albumin was first noted. It was still present in September and the cadet was taken into the hospital for study. The general health and physical condition were excellent. The urine constantly contained albumin, except in three or four specimens passed immediately on rising. Hyaline casts were found once. The Mosenthal test indicated normal function, and phenolsulphonphthalein elimination was 40 per cent in two hours. Monthly examinations of five day specimens showed, in October, two specimens containing albumin, without casts or blood, and in November, three specimens containing albumin, without casts or blood.

November 29, the cadet was scuffling with a friend and was struck in the right hypochondrium by the friend's elbow. A swelling resulted, with profuse hematuria which lasted for several days, but all traces of it disappeared in two weeks. Since that time the urine has shown a trace of albumin only once, although examined five times monthly.

CASE 5.—At the examination of a cadet in February, 1926, albuminuria was first detected. Blood was present in sufficient amount to tinge the sediment, and coarse granular casts were numerous, for which reasons the cadet was taken into the hospital at once for study. There were no subjective symptoms, and the cadet looked and felt well. All physical examinations and surveys were negative. Blood pressure was 136 systolic and 70 diastolic. Blood counts were normal. Two Mosenthal tests gave normal results, and the blood sugar, nonprotein nitrogen, uric acid and creatinine were all normal. The amount of blood and numbers of casts diminished rapidly, and on March 16, the cadet returned to duty with intermittent albuminuria, and all specimens for the preceding week free from blood cells or granular casts.

When readmitted to the hospital in May, the cadet still looked and felt well. Albuminuria was intermittent, and the microscopic examination was negative except for occasional hyaline casts. Phenolsulphonphthalein elimination was 65 per cent in two hours, and the Mosenthal test gave normal results.

When the patient was studied again in September, 1926, he was found to have traces of albumin in all specimens of urine, but the microscopic examinations were uniformly negative. The albuminuria was not orthostatic. The Mosenthal test again showed normal elimination, with no fixation of specific gravity and no nocturnal polyuria. Phenolsulphonphthalein elimination was 80 per cent in two hours.

Monthly examination of specimens of five successive days gave the following results:

October, three specimens showed albumin, without blood or casts.
November, five specimens showed albumin, without blood or casts.
December, no specimen showed albumin, blood or casts.
January, two specimens showed albumin, without blood or casts.
February, one specimen showed albumin, without blood or casts.

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March, two specimens showed albumin, without blood or casts.

CASE 6.—A cadet who did not have albuminuria until August, 1926, had had a tonsillectomy in May, 1926, because of recurrent attacks of tonsillitis and slight impairment of hearing, and in July had had an attack of chilliness, fever, headache, general aching and malaise, which necessitated hospitalization for five days. No albuminuria was noted at that time. At the August examination the urine showed a trace of albumin and a few hyaline casts. In January, 1927, he was admitted to the hospital with influenza, complicated by pleurisy and bronchopneumonia which developed after admission. At the time of his admission, the urine did not contain any albumin. He was returned to duty in twenty-four days. Twelve days later he had a chill, followed by cough and low fever, and was again admitted to the hospital. The urine was again free from albumin. He was returned to duty in twelve days. At the annual physical examination in March, he had a trace of albuminuria. Of ten specimens of urine passed on different days, six showed traces of albumin and none showed casts. April 8, he was again admitted to the hospital, with coryza and laryngitis. The urine contained albumin but no casts. Mosenthal tests, April 12 and April 15, indicated normal function; phenolsulphonphthalein elimination was 50 per cent in two hours. Surveys of sinuses and teeth for focal infections gave negative results.

CASE 7.—A cadet was admitted to the hospital, Nov. 2, 1924, because of persistent Vincent's stomatitis. The urine was found to show a trace of albumin, and he gave a history of having had the condition in 1919, after an attack of pain in the side, which lasted a day or two and was at first thought to be due to appendicitis, but later was ascribed to kidney trouble. He went on a meat-free diet for about ten months but the albuminuria persisted. However, he had none when he took the examination for entrance to West Point in March, 1923, nor was any found later until this examination in 1924, when it was present in three of four specimens examined. In one of these a few hyaline casts were found. Roentgen-ray examination for kidney stone was negative. Tonsillectomy was performed, Jan. 20, 1925, the urine at the time containing a trace of albumin. This was still present at the annual examination in March, and in four of eight specimens examined thereafter. It was again present in the spring of 1926. The cadet was admitted to the hospital for study. The urine contained albumin and red blood cells. Phenolsulphonphthalein elimination was 70 per cent in two hours, the Mosenthal test was negative, and the genitalia, including the prostate and vesicles, were normal.

Albuminuria was present again in August, 1926, but not in February, 1927. The cadet was nevertheless required to return for an examination of specimens passed on five successive days. All of these showed albumin and one contained hyaline casts but none showed blood. He was again taken into the hospital, March 28, where seven of eight specimens showed albumin, and none casts. The Mosenthal test was normal, phenolsulphonphthalein elimination was 80 per cent in two hours, and chemical analysis showed the blood to be normal.

CONCLUSIONS

1. Albuminuria may occur in healthy men without being significant of serious kidney disease. Occasionally, as in 1925 and 1926 at West Point, this condition may attain epidemic prevalence.

2. The cases discussed all occurred in persons who were doing duty and were apparently well. There were neither symptoms nor signs of disease, except in the urine. Blood pressure was not disturbed.

3. The albuminuria was apparently not related to other disease or disability, nor to food, clothing, exercise, weather or season, and only rarely to posture.

4. While a large majority of cases occurred in young persons, that was mainly because the large majority of those examined were young. The albuminuria occurred at all ages from 17 to 50.

5. There is nothing in the series to suggest or support the idea that tonsillar infection was a factor in causing the albuminuria reported.

6. The presence in the urine of blood, and hyaline and granular casts was not related to symptoms of disease, to increase of blood pressure or to impairment of kidney function, except moderate reduction of dye elimination in a few cases, and apparently did not indicate an unfavorable prognosis.

7. The fact that the term nephritis is not applied to these cases is not to be considered equivalent to a statement or a belief that nephritis was not present. No case has furnished anatomic material for study. If nephritis is present, it is apparently unimportant; its cause is unknown and recovery ensues.

8. The "epidemic" cases were usually (84 per cent) of short duration. Exceptional cases lasted from six months to a year or more. One case, probably not related to the epidemic, lasted four years and now appears to have cleared up.

9. Orthostatic albuminuria is sometimes merely a receding phase of a more constant condition, and is a step toward recovery.

10. No treatment is recommended.

THE ORIGIN OF URINARY PROTEINS*

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In a recent communication [1] it was shown that uremia could be reproduced in its minutest details in the presence of normal kidneys. Suppression of urine was previously shown to occur, not because the kidneys became impermeable but because the water was held in a firmer combination with the colloids of the blood and tissues.[2] The nitrogen retention cannot be the cause of nephritic syndromes, as many cases of uremia in which the blood nitrogen values were normal have been reported in the recent literature. Again, suppression of urinary excretion per se for very long periods (over three weeks) has not caused uremic manifestations either experimentally or clinically.

With these points in view the urinary proteins were studied not only in cases of experimental uremia but in ether nephritides in dogs. Small samples were collected every ten to fifteen minutes, and each sample that contained protein was tested against serum from rabbits which had previously been sensitized to dog blood proteins, by the method previously described by Hektoen and Welker.[3] Such antiserums will give precipitin reactions with dog blood in dilutions up to 1 : 1,000,000. With the urinary proteins that we used, no reactions occurred in dilutions of more than 1 : 10, and in many cases the reactions were negative in undiluted serum. More than 100 samples of urine passed in the early stages of our artificial uremia and of ether nephritides were thus shown to contain no blood protein. This is true only in the early stages, as later much serum protein is passed.

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Aside from a few previously reported specimens [4] these are the first urinary proteins ever isolated free from blood protein. The previous reported specimens contained blood protein from which a pure crystalline globulin was also obtained. The tissue from which these globulins originated could not be determined.

Next, antiserums were prepared against dog liver protein. Dog livers were perfused, ground in the ball mill sixty hours and repeatedly extracted with water; the protein was then precipitated by saturation with ammonium sulphate, and the precipitate freed of salt by dialysis. Dogs were immunized to a solution of this mixture of purified liver and blood proteins, and antiserums developed which gave reactions in dilutions of 1: 100,000 against the blood-free urinary protein. This antiliver serum also reacted against dog blood in high dilution. To this bivalent serum, dog blood was added in varying quantities, until the clear centrifugalized serum did not give any precipitin reaction with dog blood. Its reaction against the urinary protein remained as high with the untreated serum, thus precluding the possibility that the first reaction was against serum protein. By the same method small amounts of spleen protein were identified in the urine, and the absence of muscle and kidney protein demonstrated.

The precipitin test is considered the most accurate method of establishing the identity of specific proteins, and it is safe to assume that these experiments definitely establish the fact that in the early stages, at least, of some proteinurias, the protein is derived from the cellular degeneration of large parenchymatous organs, especially the liver.

It was previously suggested that in nephritis a disturbance of the mineral balance caused cellular disintegration to such an extent that protein leaked from the great parenchymatous organs into the blood and was excreted, as it has long been known that nonblood proteins (egg albumin and foreign serums) pass through the kidneys. It has also been shown that the prolonged passage of foreign protein through the kidneys renders them permeable to blood proteins. These phenomena may account for the fact that in the later stages of nephritis enormous amounts of serum proteins are passed. Another possible explanation of the presence of blood proteins in later stages is that it has been shown both clinically and experimentally [4] that as much as 60 per cent of the serum proteins may pass into the tissues, and there, it is suggested, may undergo some slight change in structure or acid salt formation which transforms them just enough to render them susceptible of excretion by the kidneys as foreign products.

CONCLUSIONS

1. The first blood-free urinary proteins identified originate in the liver.

2. It is probable that nephritis is not a renal disease but a disturbance of the mineral metabolism causing a disintegration of the great parenchymatous organs, which allow the proteins to leak into the blood and pass through the kidneys as foreign proteins. By some unknown mechanism, this process, once initiated, is likely to continue and involve the leakage of blood proteins as well.

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Clinical Notes, Suggestions and New Instruments

ATROPINE DIARRHEA

WILLIAM ALLAN, M.D., CHARLOTTE, N. C.

Sollmann,[1] in discussing the action of atropine, says: "Ordinary therapeutic doses relax the intestines in man and rabbits (Katsch, 1913; Hirz, 1913). In cats, they may increase peristalsis (Magnus). It is conceivable that this also occurs in man in some conditions."

REPORT OF CASE

A woman, aged 30, the wife of a physician, was referred to me after the hay-fever season. She had sneezed excessively all the year, had been troubled with constipation and sour stomach for a month, and for three nights had had a dry, tickling cough. Nothing abnormal was found on physical examination: the sinuses were clear and the blood and urine normal. She was given magnesia and 15 drops of belladonna, three times a day, and promptly developed diarrhea with cramping. The magnesia was stopped without influencing the diarrhea. When the belladonna was stopped, the diarrhea and cramping disappeared over night. When the belladonna was resumed after a two day interval, 3 drops before meals, the diarrhea and cramping returned at once, only to disappear as promptly when the taking of belladonna was again stopped. After an interval of two weeks, a single dose of 10 drops of tincture of belladonna again precipitated an attack of diarrhea with cramping.

This patient apparently bears out Sollmann's supposition, as her idiosyncrasy for atropine assumed the unusual form of diarrhea with cramping.

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OCCUPATIONAL SKIN DISEASE FROM EXPOSURE TO ROCK SALT AND WATER

FLOYD THURBER, M.D., HOLLYWOOD, CALIF.

The marked incidence of pyogenic infection among workers exposed to rock salt and water in the handling of wholesale ice cream has made salt infection a common term among the workers and the industrial surgeons. Since these so-called salt infections commonly manifest themselves as furuncles, the question of liability under workmen's compensation laws prompted my investigation of a series of cases during 1926 and 1927.

Three types of cases referable to combined rock salt and water exposure presented themselves. In order of frequency they were: (1) infected lacerations and abrasions; (2) local furuncles, and (3) chronic fissured palms. Many patients did not give any history of direct injury. Lesions occurred only in exposed areas. The infection was superficial and essentially limited to the skin. Where furuncles occurred they showed no tendency to become systemic.

Causative organisms were found to be staphylococci or mixed staphylococci and streptococci. No predominant streptococci were encountered. Cultures were taken from various dilutions from samples of the rock salt, but the tubes remained sterile. Chronicity of the wounds from chemical irritation was the only factor found directly attributable to the rock salt. The source of infection therefore would seem to be either pyogenic organisms "seeded" in the skin or extraneous dirt. Individual susceptibility was a contributing factor in some cases.

Treatment was directed toward prevention and cure. First-aid cauterization of minor wounds with tincture of iodine was done by the worker, with frequent rinsing of the hands to remove salt. It was found that the regular application of suitable oil to the skin was markedly preventive. Infection was controlled by incision, drainage and wet dressings. Removal from exposure was often necessary to promote

1. Sollmann, Torald: A Manual of Pharmacology, Philadelphia, W. B. Saunders Company, 1920, p. 288.

recovery, and occasionally a patient with individual susceptibility was transferred to a new line of employment.

SUMMARY

1. Exposure to rock salt and water in industry is a source of skin disease.
2. The source of infection in such cases is not the salt.
3. Furuncles caused from such exposure differ from the usual type in that they do not tend to become systemic.
4. Preventive and curative methods are generally successful.

AMBULANCE FOR TRANSPORTATION OF PREMATURE INFANTS

JULIUS H. HESS, M.D., CHICAGO

A most important epoch in the life of the premature infant is that period between birth and the institution of some proper method for the prevention of thermal shock. It is the experience of all institutions receiving such infants that many of them are lost through carelessness in protecting them during the first hours after birth.

The electrically heated bag here illustrated is constructed to meet conditions encountered in the home and during transportation of infants from distant points by train or automobile. It is designed as a part of the obstetric department equipment for general and special hospitals or other institutions likely to be called on for the temporary care of premature infants. The hand bag is of leather and steel construction, 24 inches long, 14 inches wide and 17 inches deep.

External and internal construction of the infant ambulance. A disk thermometer, *D*, indicates the temperature within the ambulance. Fresh air enters intake vent *G* and passes through the air conduit to the heating unit, *C*. After being warmed, it circulates up through the ambulance proper and finds egress through outlet vent *H*. Both air vents have adjustable shutters. Temperature control is provided by a thermostat, which is adjusted by turning adjusting key *F*. The latter may be removed to prevent tampering by unauthorized persons. A window at *I* in the top permits observation of the infant, and the ambulance interior may be illuminated by a small light (not illustrated) operated from the outside by a push button. A red pilot light, *B*, indicates when the heating equipment is functioning.

An even temperature is maintained by electric heat with thermostatic control. A composite heating unit permits the use of the 110 volt light current (direct or alternating current), the 32 volt current of the Pullman car, or the 6 volt current of the automobile battery. Insulated walls prevent sudden temperature change under any conditions. A proper supply of warm fresh air is assured.

Ventilation is secured by an adjustable shutter in the lower section of the outer wall which permits fresh air to pass beneath the heating unit. A similar shutter in the top of the bag completes the circulation of the air. A disk thermometer in the front of the bag is adjusted to indicate the interior temperature. Observation of the infant is made possible through a large window in the top of the bag. The interior can be illuminated by means of an electric light which is attached to the end of the bag.

Clothing and blankets used for dressing the infant during transportation are best made from heavy woolen materials.

104 South Michigan Avenue.

Council on Physical Therapy

THE FOLLOWING ARTICLE HAS BEEN APPROVED BY THE COUNCIL ON PHYSICAL THERAPY OF THE AMERICAN MEDICAL ASSOCIATION.
H. J. HOLMQUEST, SECRETARY.

ROENTGEN-RAY DIAGNOSIS

LEOPOLD JACHES, M.D.
NEW YORK

These pages present a sketchy outline of the aid which can be rendered by the roentgen rays in the recognition of disease. The space allotted being limited, only the most salient features of roentgen-ray diagnosis can be touched on. Many of the rarer but nevertheless important conditions, and even some of the more frequent ones had to be omitted. An attempt, however, has been made to present the subject with sufficient completeness to enable the physician who is not thoroughly familiar with the possibilities of roentgen-ray diagnosis to obtain a fair index of the diseases in which the roentgen rays can be of aid to him.

RELATIVE VALUE OF ROENTGENOGRAPHY AND FLUOROSCOPY

This is not the place to discuss technic. The subject cannot be explained theoretically. Only practical instruction and demonstration can give one an idea of the methods to obtain desired results. It is appropriate, however, to discuss the relative value of fluoroscopy and roentgenography. As a general principle it may be stated that whenever organs in motion are to be studied, fluoroscopy is the method of choice. No roentgenograms, however large their number, can give the impression of the movements of the diaphragm, of the action of the heart, of the pulsation of the aorta, or of the peristaltic activity of the stomach and intestines. In the latter organs even fluoroscopy, unassisted by the observer's palpatory manipulations, is generally insufficient. On the other hand, no recital or sketch of the fluoroscopic observations can equal the roentgenogram as a permanent record, nor can it furnish the fine detail often indispensable for a diagnosis. The best results are obtained by a combination of fluoroscopy and roentgenography when chest and gastro-intestinal tract are to be examined. Roentgenographic examinations are best when parts at rest are under consideration, such as bones, urinary concretions, and the nasal accessory sinuses. Fluoroscopy alone may be used in the study of cardiovascular lesions, large mediastinal tumors, or fluid in the chest. It is unsafe, however, to rely absolutely on negative fluoroscopic observations. The fine lesions of early pulmonary tuberculosis, for instance, are invariably overlooked, because either the fluoroscopic screen cannot register them with the detail that the photographic emulsion does, or human eyes are not sufficiently sensitive to detect any but the coarser shadows. It would be well for the internist or the surgeon who, following the present-day trend, installs a fluoroscopic outfit in his office, to bear in mind this limitation. Such warnings are especially appropriate at present when our younger men who spend a short time in the continental European roentgen-ray institutes bring back the idea that fluoroscopy is all that is necessary. At several of these institutions the chiefs or their assistants admitted that they were compelled to resort to fluoroscopy because it is cheaper. In estimating the relative value of these two

methods one should also bear in mind that the greatest advances in roentgen-ray diagnosis made during the last twelve or fifteen years were accomplished in this country, where the fluoroscope, though unsparingly used, is generally subservient to the roentgenogram. This statement is not prompted by super-patriotism. Most American roentgenologists concede the superlative quality of European roentgenology. Many American radiologists received all or a great part of their early training in Europe and learned that even there the roentgenogram was preferred by those who had the necessary funds available. Such, for instance, was the method of Albers-Schönberg, the great pioneer roentgenologist. Though he used the fluoroscope constantly and eventually lost his life as a result, he made roentgenograms of everything.

Stereoscopy and the single roentgenogram each has its particular field. Two plain views at right angles to each other are more valuable than a stereoscopic set made in only one direction. Stereoscopic views at right angles to each other are, of course, better than plain views in two directions. In the skull, pelvis, shoulders and hips, where views at right angles to each other cannot be taken, the stereoroentgenogram will give the best results.

FRACTURES AND DISLOCATIONS

The first attempts to use roentgen rays for diagnosis were naturally made to study fractures. Surgeons soon found the rays of inestimable value not only in the determination of the presence and nature of a fracture but also in studying the results of methods of treatment. It is no exaggeration to assert that the treatment of fractures has been revolutionized by the advent of the roentgen rays. One no more hears the surgeon maintain that all that is wanted is a good functional result and that perfect anatomic alinement is not necessary. The skilled surgeon will not rest satisfied with "a good functional result," knowing full well that such a result is not often obtained without a good anatomic result. He has learned that good function is frequently interfered with by irregularities in the alinement of the fragments, especially when near a joint. So now that he has a reliable means of determining the success or failure of his efforts, he will not rest content until the reduction of the fragments has attained the best possible alinement. Exceptions, of course, there are to this as to every other rule. In fractures of the femur, or in fractures of both bones of the forearm or leg, perfect alinement is often unattainable except by operative intervention.

While the diagnosis of fractures by the roentgen ray is comparatively simple, it must not be forgotten that some fractures are difficult of demonstration, either because of their peculiar nature and location or because they involve the junction of bone and cartilage. The latter is absolutely radiotransparent. As examples may be cited the fractures of ribs in the axillary region or at the costochondral junction. In the axilla they are not demonstrable because, the fractures being generally of the greenstick variety, there is no displacement and the views that can be had of the ribs are such that the line of fracture is between the two fragments and is overlapped by both.

Likewise, small fissures which are of great clinical importance, such as often occur in the head of the radius, may be difficult to find, unless one has roentgenograms in several different positions. Or epiphysial separation may be so slight that none but the most experienced will detect them, and then only by careful comparison with the opposite side. Such comparison should be the routine in the study of fractures in the young, as the cartilaginous epiphysial lines might be mistaken for fractures, or the converse may happen.

The fact that cartilage is transparent to the rays is of great importance in the study of fractures in children and adolescents. An injury to cartilage alone, not involving bone, is out of reach of roentgen-ray diagnosis. Similarly, the tears in the semilunar cartilages of the knee are most often missed. In such cases a negative finding does not absolutely rule out the suspected lesion.

Having mentioned these exceptions, one can affirm that by means of the roentgen ray it is possible to determine the presence of a fracture and to disclose its exact location, its nature, whether single or multiple, the position of the fragments, the method of attack in the efforts at reduction, and the result of those efforts. Callus in its early stages can be determined only by means of the roentgen ray.

Dislocations are also readily diagnosed by the roentgen ray, and differential diagnoses between fractures, dislocations or a combination of the two are made with absolute certainty. Stereoscopy will aid where the dislocation involves the shoulder joint or in the more rare luxations of the hip.

Here a note of warning should be sounded. Fluoroscopy should never be resorted to for the purpose of diagnosing fractures or dislocations. After the diagnosis has been made by means of the roentgenogram, reduction may be controlled with the aid of the screen. The result of this procedure should be checked up, however, by means of the roentgenogram. In this field cooperation between roentgenologist and surgeon is of the utmost importance.

ARTHRITIS

From the diagnosis of fractures and dislocations it is merely a step to the study of the various forms of arthritis. The changes that occur at the articulations of the bones can be demonstrated with great precision, whether they are the calcium absorbing (atrophic) states in the early inflammatory stages or the bone-productive (hypertrophic) states of the chronic or of the healed stages of the disease. The atrophic lesion is shown by the disappearance of the articular cleft, by the approximation of the contiguous bones, and by a transparency of the bones which almost equals that of the soft tissues.

The roentgenologist soon learned that, with the exception of tuberculosis, the roentgenogram does not present any differentiating signs between the various infectious forms of arthritis. There being no characteristic bone changes, whether due to the streptococcus, gonococcus or other micro-organism, he can only state that the process is acute or chronic, that it is extensive or limited. There is an exception to this rule though: In the knee-joint the gonorrheal infection often attacks the cartilage on the posterior surface of the patella and the adjacent portion of the femur, causing a close approximation of these bones in the early stages and, unless the disease has been checked, ankylosis takes place in the later stages.

In the early acute stages there is seen an enlargement of the soft tissues and after three weeks marked absorption of the calcium salts showing the bones involved in good sharp outline, with the corticalis of

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eggshell thinness, but generally as transparent as the soft tissues.

The only form of arthritis that is almost characteristic in its appearance is tuberculosis in its early stages, when there is not only marked absorption of the calcium salts but also a peculiar inflammation of the soft tissues, causing a general haziness of the entire joint.

Another characteristic finding in tuberculosis is caries sicca, which is found most frequently in the shoulder joint in middle age, where it causes distinct erosions in or near the head of the humerus.

When the tuberculous process has undergone healing, the bones resume their normal consistency; but marked deformity often remains if the process has not been at least partially checked in its early stage.

Syphilitic arthritis may sometimes be differentiated from the other forms by the presence of periostitis in the shafts of the bones adjacent to the joint involved.

Charcot's joints and syringomyelia are generally characterized by the enormous deposits of bony detritus with marked destruction of the joint, while other neurologic diseases may show purely atrophic changes.

A differential diagnostic point in Charcot's joint is the absence of pain notwithstanding the severe anatomic lesion, and no atrophy of the bone.

Perthes' disease, which affects the head of the femur, flattening it, but not involving the entire joint, occurs sometimes in adolescents. It is generally self-limited. Its etiology is unknown.

DISEASES OF THE BONES

Bone diseases can roughly be divided into three large groups: (*a*) inflammatory; (*b*) neoplastic, and (*c*) constitutional.

(*a*) The most frequent of the inflammatory diseases is osteomyelitis; next in frequency are syphilis, bone abscess and typhoid; least frequent is tuberculosis of the shaft.

Osteomyelitis is hardly ever recognized in its early stages. A septic infarct may lodge in the bone marrow and give rise to clinical symptoms, but before it has caused a perceptible macroscopic change in the bone itself the roentgenogram will not show anything at variance from the normal. Consequently, it is very important to remember that early osteomyelitis cannot be ruled out on the strength of the negative roentgenogram. As the disease progresses, its various stages are brilliantly revealed. At first there is localized widening of the transparent central area due to erosion of the corticalis. Soon the inflammatory process extends through the corticalis and causes a reaction in the periosteum, which begins to form new bone. If the process is quickly arrested, there results a thickening or sclerosis of the corticalis, possibly with a cavity in the medullary canal, which sometimes contains one or more sequestra. If the process extends, especially if it is a rapid one, the greater part or the whole of the shaft may become a sequestrum which is enveloped by the bone newly formed from the periosteum—the involucrum. The roentgen ray, better than any other means, allows the surgeon to follow this process and gives him the indications for his procedure. He can carefully watch developments and step in at the proper moment.

Syphilis generally manifests itself in the form of localized, occasionally generalized, periostitis of the shaft of the bone. When localized, it may present a uniform thickening of the corticalis and periosteum or a broken-up bony deposit, the so-called lacework periostitis. It may occur in all the long bones but is most frequent on the anterior ridge of the tibia or on the lateral surface of the distal half of the ulna. Other forms are irregular thickening with small areas of rarefaction resembling abscesses, except that the periostitis is more extensive and the rarefactions are multiple.

Another form of syphilis of the bone is gumma, which causes localized rarefaction of the bone. Its most frequent location is the humerus, where it is often discovered only after a fracture has occurred; but it may also occur in other bones. In such cases osteogenic sarcoma is generally thought of first, but a history of the previous infection, aided sometimes by a positive Wassermann reaction (the absence of which does not rule out the presence of bone syphilis), may help to make the diagnosis and prevent amputation.

Congenital syphilitic dactylitis is recognized by the cylindric mantle of periostitis that envelops the apparently normal shaft.

Syphilitic osteomyelitis is fairly common and cannot be distinguished from the pyogenic type, except that clinical symptoms are less manifest.

Bone abscess is seen as a small area of rarefaction in the corticalis of a long bone amid localized periostitis.

Typhoid bone infection may involve the spine or the long bones. It is destructive at first but later causes periosteal involvement and in the long bones may resemble abscess. The history generally makes the diagnosis.

Tuberculous osteomyelitis in adults is very rare. There are few authentic cases on record in which tuberculosis was established beyond all doubt by the demonstration of the tubercle bacillus in the bone or marrow. The few reliable cases reported show a thinning of the corticalis, general haziness of bone and medullary cavity, and no periostitis. Most other cases reported as tuberculosis are, to say the least, doubtful and generally show a mixed infection.

Congenital tuberculous dactylitis causes a widening of the entire phalanx with moderate irregular bone absorption and very well defined bone structures. It has no periosteal thickening.

(*b*) Neoplasms are either benign or malignant, primary or metastatic.

Benign neoplasms are generally osteomas, exostoses, osteochondromas, enchondromas, cysts and the giant cell tumors. Osteomas and exostoses can generally be recognized because their structure is that of the normal bone, from which they arise. They are slow growing and are mainly found on the shafts of the long bones, but near their epiphyses. Osteochondromas also generally arise from the long bones and present normal bone structure interspersed with areas of transparency —cartilage.

Enchondromas, which most frequently affect the bones of the hands and feet, are situated within the bone, causing thinning and expansion of the corticalis and disappearance of most of the normal bone, which is replaced by the radiotransparent cartilage.

Cysts expand the bone but slightly and cause thinning of the corticalis. They are homogeneously transparent and have very few, and more often no, trabeculae. They do not cause pain or enlargement of the limb and are as a rule discovered only after trauma which results in fracture.

Giant cell tumors are mentioned here because they are clinically nonmalignant and to some extent resemble bone cysts except that they are multilocular and cause greater expansion of the bone and are situated at the

ends of the long bones. They rarely metastasize or recur.

Primary malignant bone neoplasms are, to the best of our present-day knowledge, the sarcomas. Carcinoma is always metastatic. Sarcoma may also be metastatic.

Sarcoma is generally a destructive lesion. No bone is safe from its attack. When periosteum is involved there will often be new but irregular bone formation along its surface. Soon the soft tissues are invaded. The periosteal thickening may be more or less uniform at first; eventually it becomes broken up and often presents characteristic lines radiating into the soft tissues and at right angles to the shaft. The bone often expands and the corticalis is destroyed. They metastasize very readily, especially into the lungs. It is imperative, therefore, to make a roentgen-ray examination of the chest before any surgical procedure is undertaken.

The classification of this bone neoplasm has encountered great difficulty. During the last ten years, however, the work of the Sarcoma Registry has begun to bring order out of chaos. It would lead too far here to review its work to date. The reader is referred to two excellent monographs, one by Codman on Bone Sarcoma, published by Paul B. Hoeber, New York, and the other by Anatole Kolodny in supplement 1, *Surgery, Gynecology and Obstetrics*, 1927.

There are two main types of metastatic carcinoma, the bone productive and the bone destructive. The former may involve the entire spine, the pelvis, the humeri and femurs; it occurs most frequently secondary to carcinoma of the prostate, but has been observed also secondary to carcinoma of the breast, thyroid, lung, pharynx, skin and other organs.

The bone destructive type may involve all bones, including the skull. It is most frequent in carcinoma of the breast, thyroid, uterus and hypernephroma, but occurs also after other primary lesions. The involvement may be single or multiple; the former most frequently affects the trochanteric region of the femur, the latter may affect every bone in the body. It is a peculiar phenomenon that the greater the involvement the less malignant the course, except in hypernephroma and myeloma. There is even at least one case on record in which after all the bones of the body were riddled by the process, radiotherapy caused a recalcification of all the lesions.

One characteristic of all bone tumors is well worth remembering: they do not cross a joint.

(*c*) Constitutional or nutritional bone diseases are scurvy, rickets, osteitis deformans (Paget's disease) and osteitis fibrosa (Recklinghausen), which are fairly frequent. The rarer lesions are achondroplasia, osteogenesis imperfecta and osteomalacia. In scurvy the long bones, especially the femur and the tibia, are involved. Periostitis occurs and the epiphysial ends of the shafts are broadened out and irregular (fringy). As the disease progresses the subperiosteal hemorrhages organize, are even calcified, and cast dense shadows which are the most diagnostic marks of the disease.

Rickets presents a similar appearance, except for the absence of the periosteal lesion. In the more advanced or healed stages, the bones show marked bowing. The rickety rosary is often easily recognized by a spade-like expansion of the sternal ends of the ribs.

Paget's disease occurs most frequently in middle or advanced age. It may involve only one bone, generally the tibia, but most often it affects the skull at a very early stage and then invades the lower spine, the pelvis, the femurs and other bones. In all the bones except the skull it is characterized by a mixture of rarefaction and sclerosis, which resembles normal bone seen through a magnifying glass slightly out of focus. In the skull there is thickening of the vertex, with numerous larger and smaller circular patches of undifferentiated calcium deposits. The base of the skull is never involved.

Osteitis fibrosa attacks the young as well as the old and is similar in appearance to Paget's disease, but affects only the long bones. There is more rarefaction, which results in a bending of the bones. It rarely invades the skull.

Achondroplasia shows shortening and broadening of the long bones.

Osteogenesis imperfecta, which occurs in young children, is characterized by atrophy and thinning of the shafts without shortening, frequently accompanied by fractures. The vertebrae flatten and height is reduced.

In osteomalacia, which is most frequent in women, there is irregular rarefaction and, because of the softening, extreme deformity.

A lesion of unknown origin which generally affects the young is a marked absorption of the patella or of the tarsal scaphoid, which heals spontaneously. It was first described by Köhler. Another lesion, also bearing his name, is partial destruction of the head of the second metatarsal bone and, to a lesser extent, of the base of the contiguous phalanx.

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THE SPINAL COLUMN

The spine is subject to practically the same lesions as occur in other bones and joints. The most frequent lesion is tuberculosis (Pott's disease), which mainly affects the lower thoracic and lumbar areas; less so the cervical region. In this disease, which first attacks the intervertebral disks and soon invades the bodies, which become softened and decalcified and then collapse, there results very marked deformity—kyphosis. This is, especially in advanced stages, accompanied by a cold abscess, which is shown as a dense elliptic shadow hugging both sides of the spine.

In contradistinction to this is metastatic carcinoma of the spine. Even in the osteoclastic variety the intervertebral spaces remain clear, and the bodies, though decalcified, retain their shape and size, the tough carcinomatous tissue preventing their collapse until an advanced stage is reached.

Syphilis of the spine is infrequent. Its manifestation is generally a slight destruction of the vertebrae and increased density of the parts remaining intact. The diagnosis is generally made by the history, the positive Wassermann reaction and the result of antisyphilitic treatment.

Sarcoma of the spine, as a rule, causes marked destruction of the bodies affected and is followed by early metastases in the ribs, clavicles, and other parts of the spine.

Osteomyelitis is rare. Typhoid will occasionally affect vertebrae, in which it causes localized rarefactions. The history will help make the diagnosis.

In arthritis (spondylitis) the borders of the vertebrae show osteophytes, which may reach enormous extent and cause complete coalescence between them.

Trauma may result in fracture of the articular processes with dislocation, crushing of one or more vertebrae, or fracture of the transverse processes in the lumbar region.

The pelvis may be the site of any of the lesions affecting other flat bones or the vertebrae.

Tumors of the spinal cord and its meninges are not demonstrable by the roentgen ray except when they erode a contiguous vertebra. The introduction of iodized oil, however, helps greatly to localize these tumors and sometimes to determine their extent. The injection is made through the cisterna, the patient in the upright position, and roentgenograms are made shortly afterward. If a tumor is present it will generally block the canal, and the iodized oil will stay there for days, if not forever. If no tumor is present, the iodized oil quickly descends to the upper part of the sacrum, where it is recognized as a small, dense, inverted triangle.

THE SKULL AND BRAIN

The skull is treated separately because the bony texture, which is peculiarly its own, makes the various inflammatory, constitutional or neoplastic conditions assume entirely different forms from those of the long bones. It is less often affected by the more common diseases of the long bones, while in some of the rarer diseases, such as Paget's, it is more frequently and more extensively involved than the other bones. Another reason for a separate consideration of the skull is that it is subject to lesions which occur as a secondary manifestation resulting from diseases involving the brain, its cavities or its meninges.

Osteomyelitis of the skull is not as frequent as that of the long bones. There is less periosteal reaction, and there are irregular small areas of rarefaction alternating with those of more or less normal bone.

Syphilis may appear as a gumma causing a greater or smaller defect in the skull, or a marked localized thickening, or as scattered areas of thickening and rarefaction.

Carcinoma, hypernephroma, myeloma and other malignant tumors may metastasize in the skull, producing more or less numerous, small areas of bone destruction which are circular and clear cut as though they had been punched out by an instrument. Less frequent tumors are chloroma, neuroblastoma and the benign cholesteatoma. Chloroma is apt to be general but the skull metastases may be the first symptoms. Osteomas, however, are found quite frequently.

Erosions of the skull are often seen as the result of localized pressure due to a neoplasm of the brain or its meninges. Brain tumors are not demonstrable directly by the roentgen ray unless they are completely or partly calcified; indirectly they are demonstrated by causing localized areas of pressure on the bone, still less indirectly by generalized intracranial pressure. Generalized intracranial pressure is shown by erosion or complete disappearance of the sella turcica, diastasis of the sutures and thinning of the cranial bones, in which digital depressions are seen that closely fit the convolutions of the brain.

Tumors of the hypophysis cause enlargement of the sella turcica, thinning of its clinoid processes, and sometimes depression or perforation of the floor into the sphenoid sinus. Acromegaly is associated with enlargement of the facial bones and soft tissues, with prognathism and an enormous enlargement of the nasal sinuses. The bones and soft tissues of the hands and feet are also enlarged.

In recent years Dandy and his followers have been able accurately to localize intracranial tumors and other lesions by introducing air into the ventricles through a trephine opening and studying their abnormalities. Independently of him some German investigators have obtained similar results by injecting air by the endolumbar method.

Fractures of the skull are seen as linear, branching or stellate transparencies. Great care must be observed not to mistake blood vessel grooves or sutures for them. Depressed fractures can be diagnosed only by means of stereoscopic roentgenograms.

Disease of the nasal accessory sinuses generally causes a decrease in their transparency, often obliterating all detail in them. Care must be exercised when diagnosing disease of the frontal sinuses by mere lack of density; they are often very small and therefore less transparent, and not infrequently are entirely absent. Lateral views should always be made to determine their presence or size.

Disease of the mastoids is shown by general haziness in the early stages and by destruction of the septums in the later stages. Both sides should be examined for comparison.

Roentgen-ray examination of the teeth will show the presence of unerupted ones and their position, cortical abscesses by rarefaction at the root, pericementitis and pyorrhea by the lesser or greater transparent areas skirting the teeth and their roots. But one should guard against the overlapping maxillary sinuses which may simulate a transparency at a dental root.

Dentigerous cysts are shown as areas of transparency containing a tooth.

Other lesions of the jaw are similar to those of other bones and need not be dwelt on here.

(To be continued)

Council on Pharmacy and Chemistry

NEW AND NONOFFICIAL REMEDIES

THE FOLLOWING ADDITIONAL ARTICLES HAVE BEEN ACCEPTED AS CONFORMING TO THE RULES OF THE COUNCIL ON PHARMACY AND CHEMISTRY OF THE AMERICAN MEDICAL ASSOCIATION FOR ADMISSION TO NEW AND NONOFFICIAL REMEDIES. A COPY OF THE RULES ON WHICH THE COUNCIL BASES ITS ACTION WILL BE SENT ON APPLICATION.

W. A. PUCKNER, SECRETARY.

POSTERIOR PITUITARY DESICCATED-LEDERLE.—The posterior lobe of the pituitary gland of cattle, extracted with acetone, dried and powdered.

Actions and Uses.—See Pituitary Gland, New and Nonofficial Remedies, 1927, p. 285.

Dosage.—From 0.006 to 0.03 Gm. (1/10 to 1/2 grain) daily.

Manufactured by the Lederle Antitoxin Laboratories, New York. No U. S. patent or trademark.

Tablets Posterior Pituitary Desiccated-Lederle, 1/10 grain.

Posterior pituitary desiccated-Lederle is prepared according to the method given for standard powdered pituitary under Solution of Pituitary, U. S. P. X.

WHOLE PITUITARY DESICCATED-LEDERLE.—The pituitary gland of cattle, including the infundibulum and the anterior and posterior lobes, dried and powdered, without the addition of preservative or diluent.

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THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION

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SATURDAY, FEBRUARY 18, 1928

PROGRESS IN THE STUDY OF MEASLES

In 1924 a brief editorial survey of progress in the search for the cause of measles [1] indicated that little real advance had been made since the classic experiments of Hektoen [2] in 1905. In his experiments, typical measles had been produced in two persons by injections of small amounts of blood drawn from measles patients on the first day of the rash and incubated twenty-four hours in ascites broth. It had previously been shown that the disease could be produced experimentally by inoculations of fresh nasal mucus and scrapings of the skin containing blood and epithelial débris from measles patients early in the eruptive stage.[3]

Much has been added in the last three years to the already voluminous literature on the problem of the cause of measles. Tunnicliff and her co-workers have brought forward new facts about the green producing diplococcus which she isolated from the nose, throat and eye secretions and blood of early measles patients. A skin test for susceptibility to measles [4] was described in which a whole, killed, anaerobic dextrose broth culture of the Tunnicliff organism was used as antigen. In all persons tested who had a negative history for measles the reaction was positive. The tests were negative in 96 per cent of those with a history of the disease. The antigen was neutralized by convalescent measles serum and by the serum of goats immunized to the measles diplococcus.

Ferry [5] described a green forming streptococcus isolated from the blood of measles patients early in the eruptive period. It differed from Tunnicliff's diplococcus chiefly in that it produced an exotoxin. Filtrates of broth cultures produced positive skin tests in about 40 per cent of persons with no history of measles. Later Tunnicliff and Taylor [6] published the results of skin tests made with the filtrate from cultures of the Tunnicliff organism in 0.2 per cent dextrose broth containing 1 per cent of sheep's blood. Positive reactions were obtained in 50 per cent of persons with no history of measles and none in those who said they had had the disease. In explanation of Tunnicliff's previous reported failure to produce positive skin tests with filtrates of her diplococcus, they offered the fact that ascites fluid from adults who had probably had measles had been added to the mediums in which the cultures were grown.

Cary and Day [7] reported gram-positive, green producing diplococci in 98 per cent of throat cultures, about 50 per cent of cultures from conjunctival secretions, and 33 per cent of blood cultures in early measles cases. They produced rashes and febrile reactions with seven strains in rabbits.

The finding of green forming cocci in the blood of early measles patients by these and other workers is probably of more significance than the discovery of them in the nose and throat. Experienced laboratory workers are familiar with the fact that bile insoluble green cocci are practically constant in throat cultures of normal persons and by no means uncommon in nasal cultures. Many well qualified investigators have failed to obtain positive blood cultures in early measles cases. However, there is no reason to doubt the results of the authors mentioned. Of the etiologic significance of the organisms found there is more question.

In their early studies on scarlet fever the Dicks [8] made both aerobic and anaerobic cultures of the blood in twenty-four early cases of scarlet fever. Positive results were obtained in twenty of these but no single organism was constantly found. Often similar strains were found in the throat, blood and urine of these patients. The Dicks concluded that in the acute stage of scarlatinal angina organisms from the throat, regardless of their identity, often enter the blood stream in considerable numbers. The green coccus reported in the blood of early measles patients has not been found with great constancy. It may well be an accidental invader of the blood stream during the catarrhal stage of measles. While the finding is of much interest, evidence offered for its etiologic relationship to measles is not altogether convincing.

As numerous observers have pointed out,[9] the susceptibility of rabbits to the same virus that produces measles in man has by no means been proved. There

1. The Etiology of Measles—A Retrospect, editorial, J. A. M. A. **83:** 688 (Aug. 30) 1924.
2. Hektoen, Ludvig: Experimental Measles, J. Infect. Dis. **2:** 238, 1905.
3. Mayr, F.: Beobachtungen über Masern, Ztschr. d. k. k. Gesellsch. d. Aerzte zu Wien **1:** 6, 1852, cited by Hektoen, Ludvig: Experimental Measles, A Review, J. A. M. A. **72:** 177 (Jan. 18) 1919.
4. Tunnicliff, Ruth: Further Studies on Diplococcus in Measles, J. Infect. Dis. **37:** 193 (Sept.) 1925.
5. Ferry, N. S., and Fisher, L. W.: Measles Toxin, J. A. M. A. **86:** 932 (March 27) 1926.
6. Tunnicliff, Ruth; and Taylor, Ruth E.: Skin Tests in Measles, J. A. M. A. **87:** 846 (Sept. 11) 1926.
7. Cary, W. E., and Day, L. A.: The Etiology of Measles, J. A. M. A. **89:** 1206 (Oct. 8) 1927.
8. Dick, G. F., and Henry, G. R.: Anaerobic Cultures in Scarlet Fever, J. Infect. Dis. **15:** 85, 1914.
9. Hektoen (footnote 3). Sellards, A. W.: A Review of the Investigations Concerning the Etiology of Measles, Medicine **3:** 99 (May) 1924. McCartney, J. E.: Recent Work on Measles, Lancet **1:** 93 (Jan. 8) 1927.

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are some objections also to the acceptance of the mild reactions produced in monkeys by the injection of measles material as characteristic of measles. The only rashes and Koplik spots reported to have been produced with the green cocci have been in these animals and guinea-pigs. Successful experimental production of measles in man would be much more satisfactory evidence for the etiologic rôle of these organisms.

The favorable reports of Tunnicliff and her co-workers in protecting persons exposed to measles by injections of serum [10] of goats immunized to her diplococcus are promising. Reports of results of other workers using the Tunnicliff serum will no doubt soon be forthcoming, and will be awaited with interest.

Caronia [11] has reported the cultivation of a gram-negative anaerobic coccus from the blood, bone marrow, spinal fluid and nasopharyngeal secretions of patients with early eruptive measles. He also found immune bodies specific for this organism in the blood serum of convalescent cases. So far, Caronia's observations lack confirmation. McCartney [9] followed the Italian worker's directions minutely but was unable to duplicate his results. Artefacts were found in the sterile, uninoculated culture medium closely resembling the organism of Caronia.

The recent investigations of Degkwitz,[12] while not demonstrating the causative agent, are of some promise. This worker successfully repeated Hektoen's human inoculation experiment, and then attempted to discover whether the virus could be cultivated. Virus was obtained by bleeding a child on the first day of the eruption in a typical case of measles, and diluted with a special salt solution containing the same number of anions and cations as the blood, and of the same p_H. One cubic centimeter of a 1:5,000 dilution failed to produce measles in a child known to have never had measles. From this dilution subcultures were made over a period of seventy-eight days, during which time the subcultures had gone through fifteen generations and a dilution of one in three trillions of the original virus had been reached. The cultures were made in symbiosis with green cocci, sometimes the Tunnicliff organism and sometimes pneumococci. One cubic centimeter amounts of the final subculture, after filtration through a Berkefeld W filter, were injected into various persons and produced reactions consisting of a rise in temperature, conjunctivitis, bronchitis and rhinitis from ten to fourteen days after inoculation. Sometimes bluish red macules appeared on the skin, but never a typical measles eruption. Control injections of the symbiotic organisms carried through in the same way alone did not produce any recognized reaction. Two months later, inoculation of both groups with infectious measles blood was followed by the appearance of typical measles in those persons who had previously received only the filtrate of the symbiotic organisms. Those previously inoculated with subcultures of the virus did not contract the disease.

In his experiments on monkeys, Degkwitz was not able to produce a rash which he regarded as typical of measles, but he showed that the serum of those monkeys developing a rise in temperature after receiving doses of virus had definite value in protecting persons against doses of virus of proved infectivity. Degkwitz has advocated the use of a protective measles antiserum, made presumably by inoculating animals with repeated doses of his virus. Reports of its use have not been uniformly favorable.

If the human inoculation experiments of Degkwitz are repeated and confirmed, one new fact, the ability of measles virus to grow outside the body, will have been added to the knowledge of the cause of measles. The finding of green producing cocci in the blood of early measles patients by Tunnicliff, Ferry, Cary and Day and others is interesting and important. Final judgment on the rôle of these organisms in the causation of measles must be withheld until unquestioned measles has been produced by them in man or in experimental animals.

10. Tunnicliff, Ruth; and Hoyne, A. L.: Prevention of Measles by Immune Goat Serum, J. A. M. A. **87**: 2139 (Dec. 25) 1926. Hoyne, A. L., and Gasul, B. J.: Measles Prophylaxis; Report on the Use of Immune Goat Serum, ibid. **87**: 1185 (Oct. 9) 1926.

11. Caronia, G.: Etiology of Measles, Pediatria **31**: 801 (Aug. 1) 1923.

12. Degkwitz, R.: The Etiology of Measles, J. Infect. Dis. **41**: 304 (Oct.) 1927.

PREVENTION OF COLDS BY ULTRAVIOLET RADIATION

In 1926, D. F. Smiley suggested the possibility of relating the winter and spring incidence of colds to two factors other than atmospheric temperature. One of these was the seasonal deficiency in vitamin intake; the other, a disordered vitamin metabolism in the body brought on by lack of solar radiation. Later, Maughan and Smiley [1] performed experiments to determine the effect of ultraviolet radiation in preventing colds. The idea, as they stated, was not original with them. Several investigators in Europe and America had given attention to similar problems. Of these, Barenberg, Friedman and Green [2] did not obtain desirable results. Their infant subjects improved in general health during the first month of treatment but contracted an increased number of colds during the second, third and fourth months. The dosage of ultraviolet radiation to which the children were subjected was worked up to thirty minutes on alternate days. Barenberg and his co-workers commented in the following words: "There can be no question that the children received a sufficient degree of irradiation. . . . It is our

1. Maughan, G. H., and Smiley, D. F.: The Effect of General Irradiation with Ultraviolet Light upon the Frequency of Colds, J. Prev. Med. **2**: 69 (Jan.) 1928.

2. Barenberg, L. H.; Friedman, Irving; and Green, David: The Effect of Ultraviolet Irradiation on the Health of a Group of Infants, J. A. M. A. **87**: 1114 (Oct. 2) 1926.

belief that at the present time ultraviolet irradiation is given in an excess rather than in too small degree."

Accordingly, Maughan and Smiley, in their work, attempted to administer a quantity of ultraviolet radiation equivalent to that to which the ordinary city dweller is exposed during the summer. They employed five groups of persons. Group 1 was made up of adults who considered themselves very susceptible to colds, having usually four or more a year. This group was irradiated from Nov. 3, 1926, to Jan. 28, 1927. The control was group 2, composed of persons of similar age and susceptibility, who were observed over the same period as those irradiated. Members of group 3 were adults who considered themselves subject to four or more colds a year. They were irradiated from Nov. 3, 1926, to March 19, 1927. The control in this case consisted in the number of colds which the subjects recalled that they had suffered during the winter of the previous year. Group 4 was composed of adults who considered themselves especially susceptible to colds. They were irradiated from Dec. 1, 1926, to March 26, 1927. The control for this group was similar to that of group 3. Group 5 consisted of susceptible children. They received irradiation from Nov. 18, 1926, to March 19, 1927. The control was the number of colds remembered by the mothers during the previous year. Obviously, these controls are not ideal. The authors have corrected for errors as far as possible, however, and they summarize as follows: "A ten-minute irradiation of the naked body with the ordinary mercury vapor lamp at a distance of 30 inches once a week throughout the dark period of the year resulted, among four groups of persons (fifty-eight persons), in a reduction in the frequency of colds of from 27.9 to 40.3 per cent."

In this issue, Barenberg and Lewis [3] report further investigation, part of which was concerned with the same problem of irradiation and respiratory infection which before occupied them. In the latter series, however, they replaced their mercury vapor lamp with one of the carbon arc variety. The change was made in an attempt to approach the character of the solar spectrum as a whole, in which, according to A. F. Hess, there may be some virtue. Again the dosage was thirty minutes on alternate days, but in this series the authors are not fearful that their subjects suffered from overirradiation. Results, nevertheless, were no better than before.

Thus far, apparently, the family physician charged with keeping his patients well is in a dilemma. On the one hand are well controlled experiments with negative results in which the dosage was large. On the other hand are imperfectly controlled experiments and success which the investigators attribute to low dosage. Positive statements, faith and investments may well await further evidence.

3. Barenberg, L. H., and Lewis, J. M.: The Effect of Carbon Arc Irradiation on the Health of a Group of Infants, this issue, page 504.

Current Comment

THE SCHIRESON CASE

On February 4 THE JOURNAL published an editorial on Henry Junius Schireson, self-styled "plastic surgeon," recounting his professional history, based on collected material. The occasion for the editorial was the pitiful story of a young woman who lost both her legs as the result of gangrene following an operation for which she is said to have employed Schireson. The operation was done presumably to "straighten" her legs. In this issue (p. 528) will be found a report by the two reputable physicians who saved the young woman's life by amputating her gangrenous legs. The roentgenray picture indicates how little straightening was necessary or actually done. In the previous editorial it was brought out that in 1911 the licensing officials of the state of Illinois, after a thorough examination of his credentials, unanimously rejected Schireson's application for a license. It was brought out also that, subsequent to 1911, Schireson was engaged in various quackish and illegal practices, and in at least two instances was convicted and "served time." Attention was called further to the fact that in 1921 or 1922, during the incumbency of a notorious official who was later convicted of the fraudulent sale of medical licenses, Schireson was granted an Illinois license, which the present officials have not seen fit to revoke. During the past few days Chicago newspapers have reported that an "official investigation" has been made of the "leg-straightening" episode and the astounding decision reached that nothing further can be done until the victim, or some relative, signs a complaint! How much longer will Illinois tolerate Henry Junius Schireson?

THE ACIDITY OF THE GASTRIC CONTENTS

The evidence secured in experimental ways indicates that the acidity of uncontaminated gastric juice tends to be remarkably constant and decidedly greater than customary analyses of gastric contents as they are secured for diagnostic purposes would lead one to expect. Certainly the concentration of acid exceeds the 0.2 per cent of hydrochloric acid that is usually quoted as typical of the gastric material. Pure gastric juice attains at least twice that concentration. When lower figures are recorded, they are not necessarily due to an impaired or perverted secretory function but rather to a neutralizing effect of extraneous substances. The potency of food in this respect has long been appreciated; but reduction in acidity may be noted even in the absence of food. Two factors deserve especial emphasis. One is the mucus that may be discharged into the stomach and reduce the hydrogen ion concentration of the contents.[1] The other neutralizing factor is the duodenal contents, the importance of which has been stressed anew by Olch and Elman [2] of the Washington University Medical School of St. Louis.

1. Hollander, F.: The Mechanism of Gastric Secretion: Preliminary Report on a Technic for Collecting Gastric Juice of Constant and Reproducible *pH*, J. Biol. Chem. **74**: 23 (July) 1927.

2. Olch, I. Y., and Elman, R.: Regurgitation of Duodenal Contents as Factor in Neutralization of Gastric Acidity, Proc. Soc. Exper. Biol. & Med. **25**: 184 (Dec.) 1927.

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Regurgitation of this alkaline fluid into the stomach undoubtedly plays a significant part in regulating the reaction in the upper reaches of the small intestine. The most effective contributor is the strongly alkaline pancreatic juice, the bile and intestinal juices probably assuming minor rôles at best. As the St. Louis investigators summarize the phenomena, acid gastric juice, especially at the concentration at which it is secreted, will not be tolerated by the sensitive duodenal mucosa. Instead, large amounts of alkaline pancreatic juice are secreted and this fluid pours back into the stomach to decrease the gastric acidity to the point at which the duodenum will accept it. The reaction of the gastric contents, then, at any given time in the course of digestion is the resultant of secretion and neutralization by regurgitation. The prepylorus, pylorus and duodenum, Olch and Elman conclude, may well be regarded as a single organ, a mixing chamber where the acid material is prepared for the intestine; and it is in this region that most of the gastroduodenal lesions occur.

REFRACTORINESS TO INSULIN

There is a popular saying that "the exception proves the rule." However much the scientific logic of this adage, which often serves to satisfy our ignorance, may be debated it should be admitted that an accumulation of concordant exceptions sometimes leads to the establishment of new rules to include them. In medicine a rare, seemingly anomalous condition is sometimes dismissed into the category of the "exceptional." Then, when attention is drawn thereto, the number of similar cases may begin to multiply after they had previously escaped recognition or been disregarded because they seemed to be aberrant. Differential diagnosis depends in a sense on the discovery of the exceptional. For this reason it may be worth while to refer to a gradually increasing number of records of diabetic patients who seem to be resistant to the expected remedial action of insulin. Most of them are described in the European journals. A recent unusually refractory case has been reviewed by Glassberg, Somogyi and Taussig[1] of St. Louis. For some months the patient proved relatively refractory to insulin, responded only to enormous doses, and slipped into coma or precoma as soon as these doses were reduced. During this period the patient did not respond better to fractional doses of insulin than to an equivalent single dose; on the whole, the latter was more effective than the former. In ordinary diabetes, the reverse is true. Special tests showed that the refractory condition was not due to an inhibitory substance—an anti-insulin—in the blood. The observers are inclined to believe that the peculiar reactions shown by their patient can best be explained by assuming that the diabetes was not due exclusively to pancreatic insufficiency but to the lack of some substance other than insulin and equally necessary for the metabolism of carbohydrates. It would be easy to spin hypotheses regarding the possible lack of essential muscle enzymes or other tissue components. Little is gained by such multiplication of uncertainties. What is needed now is more facts regarding comparable instances that current views and information will not adequately explain.

1. Glassberg, B. Y.; Somogyi, Michael; and Taussig, A. E.: Diabetes Mellitus: Report of a Case Refractory to Insulin, Arch. Int. Med. **40**: 676 (Nov.) 1927. The earlier cases are reviewed in this paper.

Association News

THE MINNEAPOLIS SESSION

Railroad Rates to Minneapolis

The passenger associations throughout the United States have authorized a rate of one and one-half fares for the benefit of members of the American Medical Association and dependent members of their families who will attend the annual session at Minneapolis. To have the benefit of a return rate of one-half fare, it will be necessary for each member to secure a certificate from the railroad ticket agent when he purchases his ticket to Minneapolis. The certificate must be certified to by the Secretary of the American Medical Association, which may be done at the Registration Bureau to be located in the Auditorium in Minneapolis, and must then be validated by a representative of the railroads, who will be on duty, June 11 to 19. When the certificate is so certified and validated, it will entitle its holder to purchase a return ticket to his home, over the same route traveled to Minneapolis, at one-half fare. If the ticket agent at the member's home station does not have the certificate, he will furnish information as to where it may be obtained.

The certificate is *not* a receipt for money paid for a ticket, nor will a receipt entitle its holder to secure a return trip ticket at a reduced rate. Be sure to ask the ticket agent for a CERTIFICATE.

The dates of sale of tickets to Minneapolis will be June 7 to 13, inclusive, in the territories of the Central Passenger Association, the Southeastern Passenger Association and the Trunk Line Association. In the territory of the New England Passenger Association the dates of sale of tickets to Minneapolis will be June 6 to 12. In the territories of the Southwestern Passenger Association, the Western Passenger Association and the Transcontinental Passenger Association, the dates of sale of tickets from Arkansas, Illinois, Iowa, Kansas, Louisiana, Minnesota, Missouri, Nebraska, northern Michigan, North and South Dakota and Wisconsin, from Manitoba, Canada, and from Julesberg, Colo., will be June 7 to 13; from Colorado (except Julesberg), Montana, New Mexico, Oklahoma, Texas and Wyoming, June 6 to 12; from Utah, June 5 to 11; and from Arizona, British Columbia, California, Idaho, Nevada, Oregon and Washington, June 4 to 9.

Certificates properly certified and validated will be honored for purchasing tickets for the return journey at one-half fare up to and including June 19, but will not be honored after that date. No refund of fare will be made on account of failure to present validated certificate when purchasing return ticket. The return ticket must be used over the same route as that traveled going to Minneapolis. Return tickets issued at the reduced rate will not be good on any limited train on which such reduced fare transportation is not honored.

When you purchase your ticket to Minneapolis, secure from the railroad ticket agent a CERTIFICATE, which, when properly certified to and validated, will entitle you to purchase a return ticket to your home, over the same route traveled to Minneapolis, at one-half the fare paid for your ticket to Minneapolis. Certificates will be honored showing the purchase of going tickets to Minneapolis or St. Paul.

Summer excursion rates will also be in effect at the time of the annual session of the American Medical Association in June. Information with respect to these rates may be secured from the local ticket agents.

BE SURE TO ASK YOUR RAILROAD TICKET AGENT FOR A CERTIFICATE WHEN PURCHASING YOUR TICKET TO MINNEAPOLIS.

Medical News

(PHYSICIANS WILL CONFER A FAVOR BY SENDING FOR THIS DEPARTMENT ITEMS OF NEWS OF MORE OR LESS GENERAL INTEREST: SUCH AS RELATE TO SOCIETY ACTIVITIES, NEW HOSPITALS, EDUCATION, PUBLIC HEALTH, ETC.)

CALIFORNIA

Health at San Diego.—Telegraphic reports to the U. S. Department of Commerce, for the week ending February 4, from sixty-seven cities with a total population of about 29 million indicate that the highest mortality rate (21.4) was for San Diego, and that the mortality rate for the group of cities as a whole was 13.6. The mortality rate for San Diego for the corresponding week last year was 19, and for the group of cities, 14.

The d'Herelle Lectures.—The date for the Lane medical lectures to be given at Stanford University School of Medicine, San Francisco, by Dr. F. d'Herelle of Alexandria, Egypt, has been announced as the week beginning October 22, and his subjects as (1) bacteriophagy; (2) bacterial mutations; (3) nature of the bacteriophage; (4) infectious diseases; (5) the phenomenon of recovery, and (6) a general lecture on logic in biologic researches.

Poliomyelitis Makes High Record.—There has never been so disastrous a poliomyelitis year throughout the country, the state department of public health states, as last year. California was one of the first states to suffer, and from there the disease seemed to travel through the Southwestern states to the Middle West and Eastern states, then back over the northern part of the United States to the Pacific Northwest. The extent of the outbreak in California is evident in figures given for the number of cases for the last five years: 1,274 in 1927; 187 in 1926; 821 in 1925; 192 in 1924, and 251 in 1923.

Society News.—The Los Angeles Surgical Society held a symposium, February 10, on surgical handicaps due to delay, Drs. Sidney R. Burnap speaking on "Traumatisms and Infections"; Charles S. James on "Malignancies"; Adolph A. Kutzmann on "Importance of Urologic Study"; Dudley Fulton on "Surgery from the Internist's Viewpoint," and Avrum H. Zeiler on "Surgery in Retrospect."——Dr. William J. Kerr, professor of medicine, University of California Medical School, San Francisco, addressed the San Diego County Medical Society, February 14, on "Classification of Heart Disease with Some Comment on Treatment."

First Crookes Tube Used on Pacific Coast.—The University of California has the Crookes tube with which the first demonstration of roentgen ray on the Pacific Coast was made about thirty years ago. It was used to locate a bullet in the hand of a boy. It required hours to obtain the picture. Some of the earliest work after Roentgen's discovery was done at the University of California. Mechanician William R. Stamper, who aided in the construction of much of the early apparatus, is still on duty at the university. The old tube was located, February 7, while the contents of a little used section of the store room in the physics department were being checked.

COLORADO

Society News.—The Denver County Medical Society was addressed, January 17, by Drs. Russell M. Wilder and Harold E. Robertson of Rochester, Minn.; Dr. Wilder addressed the faculty of the University of Colorado the previous day on "Trends in Treatment of Diabetes Mellitus."——Dr. Harry J. Sims, Littleton, addressed the El Paso County Medical Society, January 11, on "Physiology of the Gallbladder with a Demonstration of Its Contractility."

Personal.—Dr. Edward Jackson, Denver, has been invited to be the guest of honor at the St. Louis meeting in October, 1928, of the American Academy of Ophthalmology and Otolaryngology; Dr. William H. Crisp, Denver, has succeeded Dr. Jackson as editor of the *American Journal of Ophthalmology*.——Dr. Maurice H. Rees has been appointed acting professional director of the Colorado General Hospital, Denver, to succeed Dr. Edgar A. Bocock, resigned.

Course in Neuropsychiatry.—The staff of the Colorado Psychopathic Hospital and outpatient department of the University of Colorado School of Medicine will give a graduate course in neuropsychiatry during the month of July. There will be a fee of $100 and a certificate will be given from the medical school on satisfactory completion of the course; only doctors of medicine are eligible. Inquiries should be addressed to the director of the Colorado Psychopathic Hospital, 4200 East Ninth Avenue, Denver.

DISTRICT OF COLUMBIA

Society News.—The American Laryngological, Rhinological and Otological Society will meet at the Raleigh Hotel, Washington, May 3-5, following the meeting of the Congress of American Physicians and Surgeons.——George Washington University has received the Isabella King endowment of $30,000 to establish fellowships for research in biology which will be available in 1928-1929.

Personal.—Surg. Gen. Hugh S. Cumming, U. S. Public Health Service, addressed the First District Dental Society of the State of New York at the New York Academy of Medicine, recently, on "The Place of Dentistry in Public Health Service."——Dr. Herman E. Kittredge has been appointed dermatologist to the Providence Hospital.——Charles G. Abbot, D.Sc., is the new secretary of the Smithsonian Institution and the fifth since it was chartered eighty-two years ago.

FLORIDA

Medical Arts Building at St. Petersburg.—A $300,000 office building for physicians and dentists has been opened at St. Petersburg. It is of Spanish architecture, steel, stucco, concrete and tile construction, and is removed from the main streets of the city far enough to insure quiet and still be convenient to transportation. Several members of the staff of Faith Hospital are interested in the building; the president is Dr. LeRoy A. Wylie. The offices, none of which have an entrance to the main reception room, may be combined readily. There is a drug store which does not display

"patent medicines," a restaurant and room for professional meetings, a clinical and roentgen-ray laboratory, continuous telephone service, and abundant parking space. On the third floor are apartments. Although the building probably is ahead of the requirements of the city at present, consideration was given to the number of persons who come to this community in winter. This is said to be the first building of its kind in Florida.

ILLINOIS

Hospital News.—The new Condell Memorial Hospital, Libertyville, is nearing completion and the local women's club has pledged itself to raise $2,500 to furnish the maternity wing. Mrs. Samuel Insull has agreed to furnish the surgical ward and operating room.

Personal.—Dr. Susan Rachel M. Cooper, for many years a practitioner at Aurora, Neb., has been appointed medical adviser to the students of the state normal school at Normal.——Dr. Daniel F. Paul has been elected president of the staff of St. Anthony's Hospital, Rock Island, for the ensuing year.——Most of the citizens of La Moille contributed to a purse which was presented to Dr. Joseph L. Remsburg on his eightieth birthday. Dr. Remsburg spent the day with his sister in Princeton, and on returning to La Moille was guest of honor at a surprise party.——The home of Dr. Charles L. Jones, Noble, was destroyed by fire, February 3.

Chicago

Northwestern Sells Old Medical School.—Northwestern University has sold its former medical school property at Twenty-Fourth and Dearborn streets to Wesley Memorial Hospital which it adjoins. The old school building will be torn down. Wesley Hospital now owns the entire block between State, Dearborn, Twenty-Fourth and Twenty-Fifth streets. While no immediate building project is contemplated, it is understood that the hospital will remain on the south side.

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Dr. Hopkins Honored.—A complimentary dinner was given at Rochester, Minn., February 1, in honor of Dr. Clarence W. Hopkins, chief surgeon of the Chicago Northwestern Railway, who has been associated with that corporation for twenty-five years. Following the dinner, which was attended by members of the Chicago Northwestern Railway Association and others, a presentation was made to Dr. Hopkins by Dr. Charles H. Mayo at a general staff meeting. The president of the Chicago Northwestern Railway, Mr. Fred Sargent, was present.

Visiting Nurse Association.—At the annual meeting of the Visiting Nurse Association of Chicago, January 17, Mrs. Joseph M. Cudahy was elected president for the tenth consecutive time. It is reported that during the year, the 118 nurses on the staff of the association made 288,000 calls on 41,000 patients; further assistance was rendered poor families by giving 5,937 garments provided by the Visiting Nurse Garment Association. During the year, the association received from the estate of the late James Deering an endowment of $500,000; the late Mrs. A. Montgomery Ward bequeathed $30,000 for the work of the association, and Mrs. Charles G. Schweppe contributed the same amount in memory of her father.

Society News.—Members of the staff of the Michael Reese Hospital will conduct a clinical program before the Chicago Pediatric Society, February 21, in the Sarah Morris Building. ——Dr. Luther M. Boyers, Berkeley, Calif., will address the Chicago Medical Society, February 22, on "Chronic Human Amebiasis"; the program, February 15, was on neonatal morbidity and mortality, by Drs. Clifford G. Grulee, William C. Danforth and Joseph Brennemann.——Dr. Harry L. Parker, Rochester, Minn., addressed the Chicago Neurological Society at the Drake Hotel, February 16, on "Trigeminal Neuralgic Pains Associated with Multiple Sclerosis," and Dr. Hans H. F. Reese, Madison, Wis., on "Myelographic Studies of the Spinal Canal" (thesis).——Among others, Drs. Roscoe Sensenich and Alfred S. Giordano, South Bend, Ind., will address the Chicago Society of Internal Medicine, City Club, February 27, on "Brucella Abortus Infection in Man."

Report of Health Department.—A preliminary report of the health department gives the Chicago death rate for 1927 at 11.52. It was 11.68 in 1926 and ten years ago, 14.79. It is stated that in 1927 diphtheria was 60 per cent more prevalent than in the previous year and much more fatal, the death rate being 14.1 per hundred thousand as compared with 7.3 in 1926. Pneumonia reached the highest point since 1921, with a death rate of 92.5 per hundred thousand. Measles reached its biennial peak, 17,726 cases being reported. Rabies accounted for eight deaths, the first in the city from this cause since 1920. There were twenty-nine deaths from infantile paralysis among 148 cases. Both death rates and percentages of total deaths were increased over those of previous years in heart disease, nephritis and cancer. The typhoid death rate fell to 0.74 per hundred thousand of population as compared with 0.79 in 1926, and the tuberculosis death rate to 82.7 from 83. Almost 2,000 more cases of venereal disease were reported than in the previous year. The total number of visits to the venereal disease clinics under the health department control was 200,639, an increase of about 14,000. The city health department examined 6,817 women and 192 men brought in by the police for sex offenses, and of these about 10 per cent were found to have syphilis and about 25 per cent gonorrhea. The number of deaths of children under 1 year of age per thousand births reported was reduced from 66.6 in 1926 to 62.75 in 1927. An increase of 688 births was reported over the previous year, making a total of 60,888 and a birth rate of 19.62. Since school opened in September, a drive has been made to immunize children under 7 years of age against diphtheria; the number immunized during the year was 44,600, as compared with 19,141 in 1926.

KENTUCKY

Bills Introduced.—Senate bill 161 provides that evidence of insanity as an excuse for the commission of a crime shall be inadmissible. Senate bill 215 and house bill 293 provide for a board of chiropractic examiners and regulate the practice of chiropractic.

Daviess County Reverts to Part-Time Health Officer.—After having had a full-time health department for about eight years, Daviess County has gone back to the part-time health officer system. The full-time health department had a director, three nurses and a sanitary inspector. It appears that the health department desired a larger appropriation ($7,500) than the fiscal court would appropriate to carry on the work. Dr. Robert E. Griffin was elected part-time health officer at a salary, it is reported, of $40 a month.

LOUISIANA

Health at New Orleans.—Telegraphic reports to the U. S. Department of Commerce from sixty-eight cities with a total population of about 30 million, for the week ending January 21, indicate that the highest mortality rate (22.5) was for New Orleans, and that the mortality rate for the group of cities as a whole was 13.4. The mortality rate for New Orleans for the corresponding week last year was 23.2, and for the group of cities, 14.

Safe Milk Served on Dining Cars.—The president of the state board of health, Dr. Oscar Dowling, reports that since January 20 all dining cars of the Southern Pacific lines leaving New Orleans have served milk graded according to the standard milk ordinance recommended by the U. S. Public Health Service and sponsored by sixteen states and adopted by 200 cities; eleven of these cities, Dr. Dowling states, are in Louisiana. The director of the dairy division of the state board of health has gone to Houston to give instruction in carrying out the standard milk ordinance which that city recently adopted.

Society News—The Matas Number.—The February issue of the *New Orleans Medical and Surgical Journal,* which is the Matas number, contains the addresses and response given at the dinner in honor of Dr. Rudolph Matas, New Orleans, on his return from abroad. There is also a complete bibliography of his publications. The Orleans Parish Medical Society held a joint meeting with the New Orleans Gynecological and Obstetrical Society, February 15; the guests of honor were Drs. John O. Polak, Brooklyn, who spoke on "The Toxemias of Pregnancy," and Walter W. Chipman, Montreal, who spoke on "Acute Conditions of the Lower Abdomen in the Female."

MASSACHUSETTS

Dr. Minot Appointed Director of Laboratory.—The trustees of the Boston City Hospital have selected Dr. George R. Minot, Boston, to succeed the late Dr. Francis W. Peabody as director of the Thorndike Research Laboratory, a department of the Boston City Hospital. Dr. Minot is well known for recent work on treatment of pernicious anemia by means of the so-called liver diet. Dr. Joseph T. Wearn will continue in the laboratory in association with Dr. Minot.

Bills Introduced.—House bill 597 would require a statement in writing from a vaccinating officer that the vaccine virus used by him is free from living germs of smallpox, bacilli of tuberculosis, bacilli of tetanus, and any other pus-producing micro-organisms. House bill 707 would provide for a separate board of registration in osteopathy and would regulate the practice of osteopathy. House bill 783 would require all prescriptions, recipes or formulas issued by any medical practitioner to be in writing and contain a statement as to the disease for which they have been issued.

Personal.—The resignation of Dr. Marshall H. Bailey as medical adviser to the students of Harvard University, Cambridge, has been announced, effective at the end of the current college year.——The president of Harvard University announced, February 6, the appointment, among others, of Arthur Loveridge, as associate in herpetology for one year from Sept. 1, 1927; Dr. Allan Butler, as fellow in medicine in the Medical School of Harvard University for the second half year, and Cecil D. Murray, Ph.D., as instructor in biochemical science.——Dr. Louisa Paine Tingley, Boston, has furnished a room in the new Otis wing of the Massachusetts Women's Hospital in memory of her husband; Dr. Tingley is consultant in ophthalmology at the hospital.

Society News.—Dr. Joseph C. Aub, assistant professor of medicine, Medical School of Harvard University and associate in medicine, Massachusetts General Hospital, will lecture under the auspices of the Massachusetts Dietetic Association at 46 Beacon Street, Boston, March 13, on "Mineral Metabolism."—— Dr. Austin W. Cheever, Boston, addressed the Brockton Medical Club, January 19, on "Modern Advances in Dermatology."——Dr. Milton J. Rosenau, Charles Wilder professor of preventive medicine and hygiene, Medical School of Harvard University, Boston, gave an illustrated lecture at the school, January 12, on "A Sanitary Survey of Palestine," where he visited last summer.——Dr. John W. Farlow, after many years of devoted service to the Boston Medical Library as librarian, has retired. Dr. John W. Bartol was elected president of the library for the ensuing year.

MICHIGAN

Society News.—William T. Bovie, Ph.D., professor of biophysics, Northwestern University Medical School, Chicago, will address the Wayne County Medical Society, Detroit, February 21, on "Light and Medicine"; among others, Dr. John E. Gordon, Detroit, addressed the society, February 7, on "Treatment of Laryngeal and Advanced Diphtheria."——Dr. John M. Dodd, Ashland, Wis., addressed the Gogebic County Medical Society, February 3, on "The Past, Present and Future of the Hospital."——Dr. William E. Shackleton has been elected president of the Kalamazoo Academy of Medicine for 1928.——Dr. John W. Purdy, Long Rapids, addressed the Alpena County Medical Society, January 19, on "Toxemias of Pregnancy."

Scientific Editorship and Secretaryship Separated.—At the meeting of the council of the Michigan State Medical Society, Detroit, January 11, it was decided to divorce the scientific editorship of the journal of the society from the office of secretary and to elect an editor whose sole duty should be the editing of the scientific and editorial pages; Dr. James H. Dempster, Detroit, was elected to fill that position. The secretary will undertake the business management of the journal and the editing of the department of society activities. Dr. Frederick C. Warnshuis, Grand Rapids, editor of the journal for sixteen years, was reelected secretary. Dr. Dempster last year was president of the Wayne County Medical Society. He is a graduate and professor of roentgenology of the Detroit College of Medicine and Surgery. He will assume the duties of editor with the March issue.

MISSISSIPPI

Bill Introduced.—House bill 421 provides for a state board of chiropractic examiners and for the regulation of the practice of chiropractic.

MISSOURI

Personal.—The home and office of Dr. John R. Bruce, Marshfield, was totally destroyed by fire, January 4.——The office of Dr. William E. Aubuchon, Leadwood, was destroyed by fire, January 9.——It was announced, January 7, that Edgar Allen, Ph.D., professor of anatomy, University of Missouri School of Medicine, Columbia, has been appointed assistant dean of the medical school.——Dr. Major G. Seelig, professor of clinical surgery, Washington University Medical School, St. Louis, lectured at the Mayo Foundation, Rochester, Minn., January 23, on "The Course of Medical History Epitomized."——Dr. George C. Lee has been named medical superintendent of the Kansas City Tuberculosis Hospital, Leeds, succeeding Dr. Herbert L. Mantz.

Society News.—The retiring president of the St. Louis Medical Society, Dr. Charles A. Vosburgh, entertained the children of the members of the society at the auditorium, Dec. 29, 1927, with motion pictures and refreshments; about 150 children were present.——Dr. Arthur R. McComas, Sturgeon, has been appointed chairman of the committee on arrangements for the next annual meeting of the state medical society at Columbia, May 14-17.——The St. Louis Medical Society devoted its January 31 program to a discussion of poisonous snakes; the speakers were Dr. Forest H. Staley, St. Louis, Messrs. R. M. Perkins and George Vierheller of the St. Louis Zoological Gardens, and Robert Miller, whose subject was "What a Boy Scout Should Know About Snakes."——At a public health meeting of the St. Louis Medical Society, St. Louis, February 7, Dr. Thomas Parran, Jr., U. S. Public Health Service, gave an address on "Medical Aspects of Social Hygiene"; Dr. Parran, in 1921, was state director of rural sanitation under the state board of health; Mr. John G. Lonsdale, president, National Bank of Commerce, St. Louis, addressed the society, January 17, on "The Professional Man's Finances." This was a joint meeting with the dental society.——The Kansas City Alumni Chapter of Phi Beta Pi will hold a dinner dance at the President Hotel, March 10; Dr. Lawson G. Lowrey, New York, supreme secretary, will be present.

NEW HAMPSHIRE

Personal.—A memorial is to be established to the late Dr. George Cook of Concord by the Alpha Kappa Kappa fraternity in the form of a student loan fund to assist worthy medical students in their last two years of study. Dr. Cook was an officer of the fraternity for many years previous to his death in 1922.——Dr. David Cheever, Boston, addressed the Portsmouth Medical Society at the Portsmouth Hospital, recently, on "The Stomach, Historically and Surgically Considered."——Dr. Howard A. Streeter, health officer of Manchester, was presented with a medal by the Kiwanis Club of that city, Dec. 19, 1927, after having been selected by a committee as the person who rendered the best service to the community during the year. The presentation was made by the Rev. Mr. Lane, who summarized the work done by Dr. Streeter to improve the health and sanitation of Manchester. Dr. Streeter came to Manchester in 1921.

NEW JERSEY

Bills Introduced.—Senate joint resolution 5 provides for a commission to investigate the need of additional hospitals and to determine to what extent county appropriations should be made to hospitals in which free surgical and medical services are rendered. Senate bill 106 would amend the Workmen's Compensation Act so as to require the employer to furnish artificial limbs and other appliances necessary for the treatment of an injured employee. House bill 119 provides for a state board of examiners in naturopathy and regulates the practice of naturopathy.

NEW YORK

Society News.—Dr. Arthur J. Bedell, Albany, addressed the Bronx County Medical Society, recently, on "Fundus Photograph, Its Value to the General Practitioner, the Specialist and the Patient."——The Cattaraugus County Board of Supervisors abolished the board of managers of the county laboratory, January 12, and transferred their duties to the Cattaraugus County Board of Health.

Bills Introduced.—Senate bill 521 provides that any person who has conducted a pharmacy since 1900 may incorporate, if he so desires, before September, 1928. House bill 664 would amend the civil practice act so as to provide that actions for malpractice must be commenced within one year after the cause of action has accrued. House bill 684 provides that a practitioner of optometry shall not use the title "Dr." unless his name is followed by the word "optometrist." House bill 741 would amend the Workmen's Compensation Act so as to remove the provision requiring physicians to report within twenty days. House bill 849 would provide for a commission to investigate the narcotic situation.

New York City

George Fasting, Quack, Sentenced to Jail.—George Fasting, who maintains offices at 632 Lexington Avenue, Manhattan, claimed to have graduated from the American School of Naturopathy in 1925. He advertised in Scandinavian newspapers. According to a report made by the authorities of the city department of health, Fasting claimed to have sent patients for diagnosis to Dr. Sidney H. Barovick, Manhattan, and Dr. John F. G. Luepke, Brooklyn. Fasting was convicted in special sessions, January 30, for violation of the medical practice act, and was sentenced to thirty days in jail.

Investigation of "Ambulance Chasing" Lawyers.—The appellate division of the supreme court has ordered an extensive investigation of ambulance chasing attorneys and of the activities of casualty company claim agents in accident cases. The court acted in response to a petition from a joint committee of lawyers representing the bar association of New York and Bronx counties. A supreme court justice will be appointed to conduct the inquiry who will have sufficient power to investigate the books of attorneys or of accident insurance companies if necessary. This is considered a novel proceeding in New York.

American Orthopsychiatric Association.—The fifth annual meeting of this association will be at the Russell Sage Foundation, 130 East Twenty-Second Street, February 24-25, under the presidency of Dr. Karl A. Menninger, Topeka, Kan. All persons interested in the topics under discussion are invited. Among the speakers will be Drs. Jacob I. Kasanin, Boston, on "Personality Changes Following Cerebral Trauma"; Samuel Z. Orgel, New York, "A Genetic Study of Mongolism"; Ira S. Wile, New York, "The Orientation of Conduct Disorders," and Herman M. Adler, Chicago, "Intelligence of Criminals." The purpose of this association is the centralizing of the technic, objectives and aspirations of physicians, psychologists and social workers whose primary interests lie in the problems of human behavior.

Personal.—Dr. Walter M. Brunet has been appointed secretary of the social hygiene committee, New York Tuberculosis and Health Association. Dr. Linsly R. Williams was elected president of the association at the annual meeting of the board, February 7, succeeding Dr. James A. Miller. Dr. Brunet for many years has been associated with the

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American Social Hygiene Association.——Dr. Thomas H. Russell, visiting surgeon to Gouverneur Hospital, was recently tendered a gold scalpel by the house staff.——Oscar Riddle, Ph.D., Carnegie Institution of Washington, and William Crocker, Ph.D., director, Boyce Thompson Institute for Plant Research, Yonkers, addressed the American Institute at a luncheon, February 18, at the Town Hall Club, 123 West Forty-Third Street, on "Man's Dependence on Plants."——Dr. Alfred M. Wise has been appointed attending pediatrician to the Jewish Hospital, Brooklyn.——Miss Winifred Stuart Gibbs, editor of the *American Food Journal*, died at her home, February 8.——Dr. Alfred Adler, Vienna, has returned to New York to lecture on psychologic subjects.

Society News.—The New York Electrotherapeutic Society held a symposium on sacro-iliac conditions, February 1; the speakers were Drs. Marius N. Smith-Petersen, Boston, Leon T. LeWald, William B. Snow, Reginald H. Sayre, Fred H. Albee, Raphael Lewy and Adoniram Judson Quimby.——The New York Academy of Medicine conducted a symposium, February 2, on alcoholism; the speakers were Dr. Charles Norris, chief medical examiner, and Alexander O. Gettler, Ph.D., assistant medical examiner.——Dr. Orrin Sage Wightman has been elected president of the Riverside Practitioners' Society, and Dr. Walter Truslow, president of the Associated Physicians of Long Island.——Dr. Ira S. Wile addressed the Ward's Island Psychiatric Meeting, January 25, on "Lying as a Social Phenomenon."——Dr. Louis H. Bauer, chief of the medical section of aeronautics, U. S. Department of Commerce, Washington, D. C., addressed the Monday Night Club, January 30, on "Medical Aspects of Flying and Its Contribution to the General Practice."——Dr. Francis Carter Wood addressed the Harlem Medical Association, February 1, on "Changing Attitudes in the Treatment of Cancer."——Dr. Mynie G. Peterman, Milwaukee, addressed the New York Academy of Medicine, February 9, on "The Ketogenic Diet."——The staff of the Bronx Maternity Hospital is organizing a clinical society which was addressed, February 9, at a dinner by Dr. John O. Polak, Brooklyn.——The Medical Society of the County of Queens is planning a new permanent home to be erected on its lot at Queens Boulevard and Puritan and Seminole avenues.——An aristogenic association was formed, February 2, at a dinner at the Union Club for the purpose, according to the *New York Medical Week*, of extending human life and of developing leaders with a view to improving the human race; among the guests at the dinner were Drs. Charles L. Dana, Charles Gordon Heyd, E. H. Lewinski-Corwin, Ph.D., and Charles Ward G. Crampton.——Dr. Henry H. Forbes was elected, February 3, president of the International Medical Club for 1928.——Dr. Joseph Haas was elected president of the Bronx Urological Society at an organization meeting, January 23.——Dr. Milton A. Bridges addressed the Medical Association of the Greater City of New York, February 20, on "Relationship of Precordial Stress: Blood, Uric Acid and Salicylate Therapy," and Dr. Leon T. LeWald, on "Diaphragmatic Hernia: Fluroscopic and Radiographic Appearances: Differential Diagnosis."

NORTH DAKOTA

Report on Fargo's Child Health Demonstration.—The director of the Commonwealth Fund, New York, in the ninth annual report, states that the child health demonstration carried on by the fund for the last five years at Fargo has been completed, and that the city has made provision to continue every essential activity at its own expense. For 1928 the health budget of the city of Fargo calls for an expenditure of $1.13 per capita as compared with 28 cents in the year preceding the opening of the demonstration. The report states further that the health work of the city was rated as 814 out of a possible 1,000 by the American Public Health Association, as compared with 320 the year before the demonstration began.

OHIO

Battelle Institute of Chemistry.—A tract of about five acres along the Olentangy River opposite Ohio State University has been secured by the recently incorporated Battelle Memorial Institute, and the first two buildings, costing about $500,000, will be started this spring. The institute is a corporation not for profit which has been endowed with a large sum of money from the estate of John Gordon Battelle, his wife and his son to perpetuate a trust arising from their joint wills. While the main object of the institute will be industrial research under the fellowship system, the income from the funds of the institute itself will be devoted to the broad benefit of American industry and to scientific research. The will provides that any profit arising from the operation of the institute be devoted to charity or to the support of other scientific research. The first building will be a memorial to the Battelle family, comprising administrative offices, library, auditorium, museum, machine shop, stock rooms and laboratories. As was recently announced in THE JOURNAL, Gerald L. Wendt, Ph.D., dean of the school of chemistry and physics, Pennsylvania State College, has been selected as director of the institute which, it is expected, will begin operations in the autumn.

Society News.—Dr. Carl J. Wiggers, professor of physiology, Western Reserve University School of Medicine, Cleveland, addressed the Toledo Academy of Medicine, February 3, on "Registration of Heart Sounds from the Viewpoint of the General Practitioner."——The Cleveland Academy of Medicine and the Cleveland Medical Library Association are giving a series of lectures on "The Art and History of Medicine" at the medical library: Dr. Carl A. Hamann spoke, February 13, on "The Medical Student," and Dr. W. Todd on "The Medieval Physician"; Drs. Charles W. Stone and Samuel W. Kelley will lecture, March 12, on "The Golden Age and the Golden Rule" and "Doctors and Debtors," and Drs. George E. Follansbee and Frank E. Bunts, April 9, on "Why Traditions, Ideals and Ethics" and "Observations on Development of Antiseptic Surgery During the Last Forty Years." Medical students and interns are especially invited. Maud Slye of the University of Chicago will give an illustrated lecture, February 29, at the Amasa Stone Memorial Chapel, Western Reserve University, Cleveland, on "Relation of Heredity to Cancer." At the annual meeting of the Cleveland Medical Library Association, January 16, Dr. Samuel W. Kelley was elected president for 1928. Dr. Stewart R. Roberts, professor of clinical medicine, Emory University School of Medicine, Atlanta, Ga., addressed the association on "William Withering and Digitalis." Dr. Isador C. Rubin, New York, addressed the Cleveland Academy of Medicine, February 17, on "Sterility Due to Tubal Occlusion," and Dr. Henry L. Sanford on "Temporary Sterility in the Male."——The Logan County Medical Society held a symposium on cancer, January 6, at Bellefontaine; the speakers were Drs. William H. Carey, Frank B. Kaylor and William W. Hamer.——Drs. William S. Fulton and William K. Kalbfleisch, both of Wheeling, W. Va., addressed the Muskingum County Academy of Medicine, Zanesville, January 4, on gallbladder disease.——The Cincinnati Academy of Medicine cancelled its regular meeting, January 23, for the first time since it was founded a hundred years ago to permit its members to attend a testimonial dinner in honor of the president of the University of Cincinnati, Frederick C. Hicks, Ph.D.

OREGON

Personal.—Dr. Wesley E. Gatewood, formerly associate professor of medicine, State University of Iowa College of Medicine, Iowa City, has become affiliated with the University of Oregon Medical School and is practicing in Portland.

Dr. Selling Appointed Head of Department.—Dr. Lawrence Selling, Portland, has been appointed clinical professor of medicine and head of the department of medicine of the University of Oregon Medical School. Dr. Selling is a graduate of Yale, 1904, and of Johns Hopkins University Medical School, 1908, where he served an internship and one year as a fellow in pathology, and then studied two years in Germany. He served overseas with base hospital 46, and is a member of the staffs of Emanuel, St. Vincent's, Multnomah County and Doernbecher Memorial hospitals, Portland. Dr. Selling was guest of honor at a dinner given by the faculty of the University of Oregon Medical School, January 31; Dr. Richard B. Dillehunt, the dean, was toastmaster.

Chiropractor and Druggist Fined.—Mrs. R. E. Lang, Portland, chiropractor, was found guilty of practicing medicine without a license by a circuit court jury, January 12. Mrs. Lang was convicted in the district court, Nov. 1, 1927, fined $150, and sentenced to ten days in the county jail; she appealed to the circuit court, and Judge Stevenson affirmed the sentence of the lower court. Mrs. Lang administered various medicines to a patient who subsequently died. M. E. Heath, Portland druggist, pleaded guilty, January 24, to violation of the statute which prohibits the sale of any drug for the treatment of venereal disease except on the prescription of a licensed physician. Heath was fined $50. A campaign is being waged against violations of public laws by Special Agent C. A. Morrow of the state board of medical examiners. These cases were prosecuted by Deputy District Attorney C. W. Kirk, who has successfully prosecuted many others in the last few months.

PENNSYLVANIA

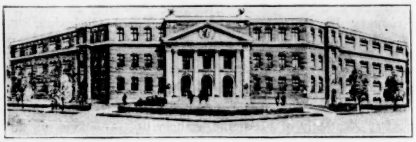
Personal.—Dr. Tamoh Ikeda of the bureau of public health, Tokyo, Japan, spent January working with Prof. Raymond A. Dutcher in the vitamin laboratory of the Pennsylvania State College; he is in this country under the auspices of the Rockefeller Foundation.

State Health Department Item.—The state department of health considers its bureau of vital statistics the largest state bureau in the United States. It has offices at Harrisburg, Pittsburgh and Philadelphia, and during 1927 issued a total of 71,077 certified copies of birth and death records for which it collected more than $35,000 in fees that were turned over to the state treasury.

Philadelphia

Personal.—Dr. Joseph C. Doane, superintendent of the Philadelphia General Hospital, will address the Cleveland chapter of the American Association of Hospital Social Workers, February 21, at the Hotel Winton, Cleveland, on hospital social service and its relation to the practice of medicine.——Dr. Charles H. Frazier has been reelected president of the Public Charities Association of Pennsylvania.

College of Pharmacy Dedicates New Building.—The Philadelphia College of Pharmacy and Science will dedicate a new college building at Forty-Third Street and Kingsessing and Woodland avenues, February 23, on which day, 107 years ago, the college was founded. The building is of the Georgian type, of reinforced concrete trimmed with Indiana lime stone and faced with dark red brick. It is within walking distance of five trolley lines on a triangular tract facing Clark Park. All the class room and laboratory equipment is new. The third floor contains a museum, a department of biology and pharmacognosy, and laboratories of bacteriology and clinical chemistry; the second floor has the library, the editorial



rooms of the *American Journal of Pharmacy*, the dispensing laboratory, the advanced chemistry and industrial chemistry departments and class rooms. The auditorium is on the first floor, as are also lecture rooms, a rest room, a men's lounge, the offices, the analytic chemistry department and the operative chemistry department. The class rooms are insulated as to sound transmission. During the first century of its existence, the college occupied four different homes. It was on Tenth Street for more than fifty years. There are 6,000 alumni of the institution, and the graduating classes now number several hundred students. Dr. Wilmer Krusen, until recently director of the department of health of Philadelphia, has been elected president of the college.

TENNESSEE

Personal.—Dr. Lloyd M. Graves, Memphis, has taken up the duties of the superintendent of the city board of health. ——Dr. William W. Grant, for many years a resident of Denver, has taken up his residence at Jackson, where he has become affiliated with the Crook Sanatorium. Dr. Grant was for many years a member of the Board of Trustees of the American Medical Association and formerly was president of the Colorado State Medical Society.

Society News.—Among others, Dr. Otis S. Warr, Memphis, addressed the Five County Medical Society at Savannah, January 31, on "Angina Pectoris."——The Tri-State Medical Association (Mississippi, Arkansas, Tennessee) will hold its forty-fourth annual convention at the Hotel Peabody, Memphis, February 29-March 2, under the presidency of Dr. Harris T. Collier, McKenzie. The public will be invited to a meeting, Wednesday. Among many other speakers, George E. Vincent, Ph.D., president, Rockefeller Foundation, New York, will discuss "The Doctor and the Public," and Dr. Eugene L. Fisk, New York, "Periodic Health Examinations."

WISCONSIN

University Drops Hundreds of Students.—The registrar of the University of Wisconsin has reported to the board of visitors that about 1,700 students who entered the university in the present year, out of a total enrolment in the freshman class of 2,900, will not return next fall. The students will be excused from reentrance, according to the Boston *Transcript*, because of their inability to maintain the academic level required at the university. According to the report, many of those to be dropped came to college with the belief that they would find on the campus a "glorified playground."

Litigation Dismissed.—The pending litigation to revoke the license to practice of Dr. Emil C. Schoene has been dismissed, according to the Milwaukee *Journal*, following an agreement between the district attorney and the attorneys. Dr. Schoene was sentenced for manslaughter in 1922 to four years in the state prison after the death of an infant following an illegal operation. Action was then taken to revoke his license to practice. The state supreme court sustained the decision of the judge of the lower court in overruling the physician's demurrer. Dr. Schoene was pardoned in 1925, several months before the expiration of his term.

Society News.—Dr. J. E. Holst of the University of Copenhagen addressed the University of Wisconsin Medical Society, February 6, on "Occurrence and Importance of Glycosuria." ——Dr. David C. Hall has been elected president of the King County Medical Society, Seattle, for the ensuing year.—— Among others, Dr. John P. Koehler, health commissioner of Milwaukee, addressed the Medical Society of Milwaukee County, February 10, on "New Health Department Activities and Their Relation to the Medical Profession," and Dr. Frederick J. Gaenslen on acute and chronic osteomyelitis.——The Milwaukee Academy of Medicine and the pediatric society held a joint meeting, February 14, which was addressed by Drs. Frederick F. Tisdall, Toronto, Canada, on "Sunshine and Skyshine: Their Ultraviolet Content and Use in the Practice of Pediatrics," and Samuel Amberg, Rochester, Minn., on "Hypertension in the Young."

GENERAL

News of Epidemics.—Six families were reported under quarantine at De Pere, Wis., recently, on account of smallpox. There are said to be many other cases in Brown County.—— Four cases of smallpox among the students of the University of Indiana at Bloomington were reported, January 27.——To prevent the spread of diphtheria in Chadron, Neb., the public schools were recently closed in order to fumigate the buildings.——Measles is spreading in Baltimore; there were 480 new cases last week as compared with three cases for the corresponding week of 1927. Measles appears to be responsible for an increase in pneumonia, as 36 per cent of the forty-two deaths from pneumonia last week in Baltimore were in children under 10 years of age.

Cancer Society Meeting.—The American Society for the Control of Cancer will hold its annual meeting, March 3, in New York, which, it is expected, will be attended by the directors of the various cancer research laboratories in the United States, public health authorities and some of the state chairmen. In the morning, Dr. Francis Carter Wood will demonstrate modern cancer research at the Crocker Laboratory; Henry F. Vaughan, D.P.H., health commissioner of Detroit, will speak at a luncheon at the Biltmore Hotel on "Functions of Health Departments in the Control of Cancer," and Dr. Jonathan M. Wainwright, Scranton, Pa., on "What the Medical Profession Should Do About Cancer." Short discussions of cancer control in its practical aspects and a short business meeting will take up the afternoon.

Society News.—The American Gynecological Society will meet at the Mayflower Hotel, Washington, D. C., April 30-May 2.——Henry F. Osborn, LL.D., American Museum of Natural History, New York, has been made president-elect of the American Association for the Advancement of Science. ——The American Pharmaceutical Association will hold its seventy-sixth annual meeting in Portland, Maine, August 20-25, with headquarters at the Eastland Hotel instead of meeting at Poland Springs, which was originally chosen. This will be the first meeting of the association in Maine. The local secretary for the meeting is Mr. E. F. Carswell, Gorham.——The new officers of the Federation of State Medical Boards of the United States are Dr. Guy L. Connor, Detroit, president; Drs. Herbert M. Platter, Columbus, president elect; Harold L. Rypins, Albany, N. Y., vice president, and Walter L. Bierring, Des Moines, secretary-treasurer.

Early Diagnosis of Tuberculosis Campaign.—The National Tuberculosis Association, with the assistance of the state and community associations, will conduct a publicity campaign during March throughout the United States to emphasize the importance of early diagnosis of tuberculosis. It is

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requested that medical, health, social and civic organizations participate in this movement to inform the public of the danger signs of early tuberculosis, and to stimulate interest on the part of physicians in the recognition of early tuberculosis. Meetings will be held, pamphlets distributed, and the films "Let Your Doctor Decide," and "The Doctor Decides," exhibited. The publicity material has been approved for accuracy by the National Tuberculosis Association, which will finance the campaign from the proceeds of the Christmas seal sale. The headquarters office of the National Tuberculosis Association is 370 Seventh Avenue, New York.

Ophthalmologic News.—In view of the guide to medical literature furnished by the *Quarterly Cumulative Index Medicus*, published by the American Medical Association, the editor of the *American Journal of Ophthalmology* has decided to discontinue the list of current literature heretofore published in that journal.——The Pittsburgh Ophthalmological Society recently met at the new general hospital, Washington, Pa., at the invitation of Dr. John B. McMurray, who entertained the members at dinner at the country club and provided a scientific program.——Dr. and Mrs. Casey A. Wood, formerly of Chicago, after two years' absence abroad, are spending the winter in California.——Dr. William L. Fox has been appointed to the ophthalmologic division of the city hospital, Cleveland.——The Pittsburgh Slit-Lamp Society is studying Fuchs' two volumes on the histopathology of the eye, throwing on a screen the photomicrographs and discussing them.——Dr. Edward V. L. Brown, clinical professor and chairman of the department of ophthalmology, University of Chicago, has given to the university his library of ophthalmology.

Origin of Scientific Men.—A study of the origin and distribution of men whose contributions to science have been of the greatest value appears in the fourth edition of the "Biographical Directory of American Men of Science," published in December by James McKeen Cattell, Sc.D., editor of *Science*. The methods of selecting these names are designated in the book. Among the 601 names added to the last two editions, it appears that New York led in the production of scientists with sixty-seven; Ohio followed with forty-nine; Massachusetts, forty-eight; Illinois, forty-five; Pennsylvania, forty-one; Iowa, twenty-seven; Wisconsin, twenty-four; Missouri, twenty-one; Indiana, eighteen; Connecticut, sixteen; Minnesota, fourteen; Maryland, thirteen; Michigan, thirteen; California, eleven, and Kansas, eleven. The number of scientific men coming from the south Atlantic, south central and the western divisions is small. Of the 1,000 leading scientific men selected by the editor in 1903, Massachusetts produced 134 and Connecticut, forty; New York in proportion to its population had then produced about half as many, and the north central states about a third as many. About seven years later, the birth rate of leading scientific men in Massachusetts had fallen from 109 per million of population to 85, and in Connecticut from 87 to 57; the birth rate of leading scientists had then increased in Michigan from 37 per million of population to 74; in Minnesota from 23 to 59, and in Wisconsin from 45 to 54. As compared with New England the intellectual fecundity of the north central states, Dr. Cattell writes, has increased still further, extending westward and southward to Iowa, Missouri and Kansas. The situation in New England is considered ominous, as every state has lost and the rural population appears to be becoming intellectually sterile. The losses of New York, New Jersey and Maryland startle the editor, who suggests that it may be because of the enormous increase in wealth in these states. Pennsylvania and Delaware remain nearly stationary, while there are small gains in most of the south Atlantic and south central states. These losses of the eastern states are counterbalanced by the gains of the central states, all of which have gained except Michigan, although the gains in Ohio and Indiana are small. As these three states are the most eastern of this group, they appear to be following in the wake of the Atlantic seaboard. To the west of the central states, the trend predicts large future developments. Thus westward the course of science takes its way.

CORRECTION

Diphtheria Prophylaxis Among Asthmatic Patients.—In the article by Dr. G. L. Waldbott (THE JOURNAL, January 28, page 290) about the middle of the first column of the article, it was stated that Park does not recommend general diphtheria immunization among adults, unless the patient gives a negative Schick test. The word "negative" should have read "positive."

Foreign Letters

LONDON

(From Our Regular Correspondent)

Jan. 28, 1928.

Reports on Radium Therapy

The Medical Research Council, which was supplied by the government with a stock of radium for distribution to the principal surgical centers, has issued a summary of the reports received from centers for the year 1926.

Cancer of the Breast.—Comparatively large quantities of radium acting for about twenty-four hours were used at the Middlesex Hospital. At St. Bartholomew's Hospital a number of distributed foci containing small quantities of radium were allowed to act for about a week. By comparison of results it is hoped to ascertain which technic is the better. At the Middlesex Hospital, in thirteen cases of recurrent carcinoma of the breast, eleven radical operations and two local or incomplete operations were performed. In three cases recurrences disappeared finally; in seven they disappeared but returned locally or elsewhere, and in three cases there was little or no improvement. The results of treatment of seven cases of recurrent carcinoma were given; in four, recurrences disappeared and did not return; in one the growth was excised before treatment and there was no recurrence; in two there was little or no improvement. Five primary growths were treated similarly; in four cases they disappeared without recurrence, and in one there was great improvement. Surface radium therapy was tried at the Middlesex Hospital in seven cases of primary carcinoma of the breast, with considerable benefit in most cases. It was also used in twenty cases of inoperable supraclavicular recurrence and in thirty-three cases of nodular recurrence. Ten cases of recurrent carcinoma with cutaneous nodules were treated with radium in conjunction with the roentgen ray at King's College Hospital; the nodules generally diminished in size and in some cases disappeared, but seven out of ten cases showed evidence of mediastinal involvement. Cardiff Royal Infirmary reported five cases of recurrent carcinoma treated with comparatively large quantities of radium from one to three days; three patients were relieved, one was unrelieved and one died.

Cancer of the Cervix.—University College Hospital reports that in fifty-eight inoperable cases traced from October, 1921, to October, 1926, six patients were alive, three of whom had recurrences and fifty-two had died, the average duration of life being fifteen months. Of thirteen operable cases, seven of the patients were alive and six had not had recurrences. Of twenty-two patients treated with radium and subsequently by Wertheim's operation, five were alive without recurrence and three, who also survive, have developed recurrences at the end of fifty-four, fifty-three and eighteen months, respectively. St. Bartholomew's Hospital reports on 196 patients treated with radium since May, 1921. In 146 cases the occurrence of hemorrhage before and after treatment was noted, and it was found that it ceased entirely in 124, with the exception of a return shortly before death in some cases. Hypertrophic growth disappeared in sixty of sixty-nine cases noted. Of ninety-two cases of malignant ulceration this disappeared, temporarily or permanently, in sixty-two. Three main lines of technic were used: (1) introduction of one or more radium tubes into the cervical canal, supplemented by applicators packed round the cervix in the vaginal fornices; (2) introduction of one or more radium tubes into the cervical canal, tubes being inserted into the cervical tissues; (3) introduction of a large number of tubes of low radium content into the cervical tissues. The introduction of single tubes of

radium into the cervical canal has been found inadequate unless supplemented in one of the ways mentioned.

Cancer of the Mouth, Nasopharynx, Larynx and Esophagus.—This is dealt with in several reports. At St. Bartholomew's Hospital primary growths of the mouth often yielded to radium treatment, whereas glands affected did not. It is thought that the resistance to radiation varies with the region where the growth arises and depends on some intrinsic quality of the tissues. The technic adopted in the case of carcinoma of the nasopharynx and larynx is described in detail, including the making of a large window in the thyroid cartilage so as to allow the needles to be placed as close to the growth as possible.

Sarcoma of the Rectum and Bladder.—At Birmingham, twenty advanced and inoperable cases of carcinoma of the rectum were treated, seventeen being columnar-cell. Improvement was obtained in four cases, while eight were not benefited and three patients died; the remaining five are too recent for any conclusions to be drawn. Colostomy is advised before treatment by radium, though removal of the coccyx is not advocated. St. Peter's Hospital reported on the treatment of five cases of carcinoma of the bladder. In three cases no benefit resulted, apart from the arrest of the hematuria, but in two cases there was also considerable improvement in the general condition. Many of the sarcomas were found highly sensitive to radium, growths of considerable size diminishing when adequate doses are given. Among the lymphosarcomas, however, recurrence was more frequent.

International Convention on Cancer Research

At a meeting of the grand council of the British empire cancer campaign it was announced that an international convention on cancer research was being convened for next July in London. Sir John Bland Sutton, past president of the Royal College of Surgeons and vice chairman of the campaign, had accepted the position of president of the convention. The work of the convention will be divided into the following sections: pathologic, diagnosis, medical treatment, surgical treatment, roentgenologic treatment, and public health and statistics. Chairmen had been appointed for some of these sections: Sir Thomas Horder, with Sir William Willcox, as vice chairman of the diagnosis section; Professor Lazarus-Barlow, pathologic section; Sir Charles Gordon-Watson, surgical treatment section; Professor Sidney Russ, with Dr. Robert Knox as vice chairman, roentgenologic treatment section; and Lieut.-Col. F. E. Fremantle, public health and statistics section. Invitations are being sent to all parts of the world to those whose names are closely associated with modern research into the cancer problem, and all the universities and medical schools of the United Kingdom will be invited.

Is Research Overdone?

In a letter to the *Times*, Dr. G. S. Moore, health officer of Huddersfield, argues that research is badly overdone. Influenced naturally, but unduly, by the enormously beneficial results to the human race of a very few outstanding discoveries—those of Simpson, Pasteur, Lister and Manson-Ross, he says, exhaust the list—we endow "research" with potentialities beyond reason and with funds correspondingly lavish. In 1887, in celebration of Queen Victoria's jubilee, £1,500,000 was collected and handed to a London hospital for cancer research. Prudently invested, this capital would yield $75,000 per annum, what seems to be of itself an adequate endowment. Yet, after forty years, what results are discernible? From the practical point of view of the person stricken with the disease, they are a minus quantity. It is true that a vast inchoate mass of information has been accumulated, but the actual death rate from cancer has increased by something like 100 per cent since the year 1887. Dr. Moore urges colleagues to turn their backs on the alluring idea of short cuts to success by way of laboratories. Another health officer, Dr. James Fenton, recommended in the *Times* preventive research to reduce maternal mortality at present about 4 or 5 per thousand. But Dr. Moore replies that by the exercise of common sense, added to earnest work guided by experience, for far less money than research would call for we now have in our hands the means of achieving satisfactory results. He has thus obtained a remarkable reduction of the maternal mortality in Huddersfield.

Malta Physicians Object to the Term Mediterranean or Malta Fever

The disease sometimes called Mediterranean or Malta fever has been labeled with a multitude of names; thirteen have been given to it on account of its supposed resemblance to typhoid or to malaria; the character of its fever and the symptoms gave rise to fourteen others, and nine more were derived from the conditions that from time to time were considered to favor its prevalence. From the localities in which it was recognized it came to be called Mediterranean fever, Malta fever, Italian fever, Neopolitan fever, Rock or Gilbraltar fever, Cyprus fever or Crimean fever. The name "undulant fever," originally proposed by Capt. M. L. Hughes of the army medical staff in 1897, was recommended by the international congress of medicine held in London in 1913 and is generally used by English writers. The terms "Malta" or "Mediterranean fever," however, are frequently used. The Malta physicians have issued a protest against these names, because of their damaging effect on the reputation of the island. They appeal to medical writers to discard them in favor of the more proper name undulant fever. The term "undulant fever," though not perfect, is the most suitable designation as it describes one of the most constant and characteristic features—the undulations of the temperature curve. The temperature constitutes the primary, in many cases the only, clinical manifestation; and, although the curve may not always be of the "undulant" type, yet the phenomenon is sufficiently frequent and typical to justify the term. Geographic names for specific diseases are undesirable from a scientific point of view. They are mainly relics of the times when the miasmatic theory of disease held sway and each kind of fever was considered to be caused by "infective emanations" inherent to the particular country or locality where it prevailed. The result of the geographic names was that under the term "Mediterranean" fevers were frequently grouped indiscriminately such diseases as typhus and typhoid, yellow fever, another fever accompanied by jaundice of doubtful nature, sandfly fever, relapsing fever and probably malaria cases and other feverish diseases still unclassified. Moreover, undulant fever is not confined to the island of Malta or to the Mediterranean; it has been found in other European regions and in China and America, South Africa and India. Nor, it may be mentioned, is it peculiar to the Maltese goat.

Biologic Teaching for Politicians

In a letter to the *Times*, on behalf of the Eugenics Society, of which he is president, Major Leonard Darwin (son of Charles Darwin) advocates the teaching of biology in schools because the appreciation by the intelligent public of the great national issues which hang on the biologic composition of future generations of citizens is the only adequate safeguard against possible dangers. The laws of heredity are now recognized as of vital importance, not only for increasing and improving supplies of agricultural products but for human life itself. He submits that it is not alone the aspirant to a post in agricultural teaching who must hence-

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forth possess the necessary scientific equipment; it is even more important that the man aspiring to a place in national leadership, whether at home or overseas, should have a firm grasp of all available knowledge of those laws which underlie human life and human evolution.

PARIS

(From Our Regular Correspondent)

Jan. 18, 1928.

The Excessive Mortality in France

M. Paul Strauss, senator of the department of the Seine and former minister of health, presented recently before the Academy of Medicine the statistics collected by the health section of the League of Nations on the birth rate and the mortality of the different nations. While France is not becoming depopulated in the absolute sense of the word, it shows at present the lowest excess of births over deaths. In regard to the birth rate, France can be reasonably content. Whereas the birth rate has declined 26 per cent in Germany, 22 per cent in England and 13 per cent in Italy, it has actually increased 0.53 per cent in France since 1913. But the mortality statistics are more disquieting. For a number of years the mortality rate among infants and children in France has been considerably higher than that of England. Tuberculosis causes the deaths of twenty-five per 10,000 of persons belonging to the 25-35 age group, whereas the corresponding figure for England is thirteen. Léon Bernard stated that the public authorities can reduce the present mortality, and emphasized that it was less expensive for the country to create health services than to lose inhabitants through negligence.

The Proposed Demolition of Insalubrious Sections of Paris

The city of Paris, imitating the example of London, has decided on the demolition of two hundred buildings in the Saint Merri quarter that have long since been recognized as unhygienic. The buildings are used as lodging houses and are very old. Nevertheless, lovers of the picturesque deplore demolition. The buildings are neglected by their owners, who receive a mere pittance from their miserable tenants, among whom all sorts of epidemics, including tuberculosis, take a large toll of victims.

The Reconstruction of Paris Hospitals

Influenced by the report of M. Henry Grangier, the muncipal council of Paris has approved the plans of the director of the Assistance publique, M. Louis Mourier, with regard to the restoration of several old Paris hospitals. For the realization of the project the sum of $7,500,000, payable in annual instalments, will be appropriated. Four large hospitals, the lamentable condition of which has been recognized for some time, although it has been impossible to apply the remedy, will be the objects of particular attention. The four hospitals in question are: Broussais and Richat, which will be rebuilt on their present site; Beaujon, which will be replaced by a new building at Clichy on a site belonging to the Assistance publique, and Charité, which is destined to disappear completely, while the section that it has served will be attached to that of the Broussais Hospital, which will become a large modern hospital with a thousand beds. The program of reconstruction outlined provides also for the enlargement of the Claude-Bernard Hospital for contagious diseases and the creation of two suburban hospitals for grave cases of tuberculosis. The appropriation includes also an allowance of $1,120,000 for the creation of homes for the aged.

Sentences Imposed on Physicians for Abortion

Two Paris physicians have recently had a severe sentence imposed on them on being convicted of practicing criminal abortion on a young woman, who died as a result of their intervention. Both physicians received a sentence involving three years in prison, a fine of $200, and suspension for a period of five years of the right to practice medicine. One physician had performed the abortion, and the other had brought him the young woman for that purpose. Abortion in France is severely punished, as it is in England, whereas it is legally practiced in soviet Russia and discreetly tolerated in certain other countries. Abortion is, in reality, relatively frequent among all classes of society, not only among young unmarried women and widows but also among married women in comfortable circumstances who fear to increase their family burdens. The real cause of the depopulation of France lies here. Everybody knows it, though feigning to be ignorant. Midwives especially are prone to practice abortion, which thus becomes all the more dangerous, owing to their lack of medical training. The intervention of physicians is, in reality, exceedingly rare. Physicians receive the most severe sentences for abortion, it being alleged that their higher social position should render them more scrupulous. The main purpose of the severe sentences appears to be the idea of awakening a salutary fear among the medical profession and of impressing the general public with the vigilance of the authorities.

The Mohammedan Dispensary in Paris

Some time ago, the Institut musulman created in Paris a Mohammedan dispensary to provide a consultation center for the population of Algerian and Moroccan origin, which is at present very numerous, consisting chiefly of factory workers who were brought in during the war and who have settled down in the capital and the suburbs. These patients prefer to be treated according to the customs of their religion, and many of them have need of an interpreter. This dispensary gradually lapsed into undesirable hygienic conditions, so that its complete reorganization has become necessary. Though still located in the mosque, it will be nevertheless attached to the bureau of social hygiene of the department of the Seine, and will be subsidized by the minister of health.

BELGIUM

(From Our Regular Correspondent)

Dec. 21, 1927.

Changes in Cancer and in Precancerous Conditions

Before the Academy of Medicine, Sloss and Reding recently presented researches to show that changes in the sugar regulatory mechanism are manifest in the precancerous stage; they differ from the changes of the cancerous stage only in the matter of intensity. In avowedly cancerous subjects there is a more or less accentuated disturbance of sugar regulation. This disorder is manifested by the considerable height and by the retardation of the peak of the hyperglycemia curve; also by the duration of the phase of hyperglycemia. The disorder is not affected by the site of the tumor or by its histologic nature. Radiologic treatment exerts a profound and durable influence on the sugar regulatory mechanism in cancerous subjects, and the action varies with the clinical effect obtained.

Antituberculosis Vaccination by the B C G Vaccine

Before the Congrès international d'hygiène, Dr. Van Beneden reported recently the results secured from the administration of the B C G antituberculosis vaccine to 470 children. Through Dr. Malvoz the authorization was obtained from Professor Calmette to establish in the bacteriologic institute of Liége a service for the preparation and distribution of the B C G vaccine in Belgium.

In 1924 the vaccine was administered to twenty-three, in 1925 to 115, and in 1926 to 236 new-born. Toward the end

of 1926, information was requested in regard to twenty-three children vaccinated more than twenty-four months previously and 115 children vaccinated from twelve to twenty-four months previously, and thirty-four record cards of children vaccinated more than six months previously were received.

Of the twenty-three children vaccinated more than two years previously, sixteen have been supervised regularly from a medical point of view. Of these sixteen, ten brought up with patients whose sputum contained tubercle bacilli are in good health; one brought up with a tuberculous person not presenting tubercle bacilli in his sputum is in good health; three brought up with healthy persons are in good health, and two brought up in an environment of patients whose sputum did not contain tubercle bacilli have died (one from pertussis, and the other from acute bronchitis).

Of the 115 children vaccinated within one to two years, medical information was lacking with regard to sixty-two. Fifty-three, however, were supervised regularly by physicians. Twenty-two brought up in contact with tuberculous persons with sputum positive for tubercle bacilli are in good health; twelve brought up in contact with tuberculous persons not presenting tubercle bacilli in their sputum are in good health; eleven brought up in contact with healthy persons are in good health; five brought up in the environment of tuberculous persons with negative sputum have died (two from gastroenteritis, one from convulsions, one from acute bronchitis, one from diphtheria); two brought up in the environment of persons presenting tubercle bacilli in their sputum have died (one from enteritis, one after pertussis and bronchopneumonia terminating in convulsions and meningitis, presumably tuberculous).

Of the thirty-four children vaccinated from six to twelve months previously, twenty brought up in contact with tuberculous persons whose sputum was positive for tubercle bacilli are in good health; one brought up in contact with a tuberculous person with negative sputum is in good health; twelve brought up in contact with healthy persons are in good health; one brought up in contact with healthy persons has died from convulsions. The vaccine was well tolerated by all subjects to whom it was administered.

To summarize: Of the children vaccinated, 9.7 per cent have died of diseases other than tuberculosis, while only 0.9 per cent have died of diseases presumably tuberculous.

The results secured in Belgium with the BCG vaccine, distributed by the bacteriologic institute of Liége, since Aug. 1, 1924, are very encouraging and in every respect comparable with the results obtained in France with the vaccine prepared by the Service de tuberculose of the Pasteur Institute in Paris.

Five Hundredth Anniversary of the University of Louvain

Ceremonies in commemoration of the fifth anniversary of the foundation of the University of Louvain were held recently in that city. The dedication of the restored university halls and of the university psychiatric clinic took place the second day of the ceremonies. The psychiatric institute can accommodate 800 patients. In the surrounding park comprising 87 acres, nine detached buildings have been erected to house as many different categories of the insane.

The Pasteur Institute at Stanleyville

Belgium commemorates this year the fiftieth anniversary of the first expedition of Stanley to the Congo, the point of departure of its colonial policy, which resulted in the annexation of the colony to the mother country. In honor of the occasion, the provincial council of Brabant has voted an appropriation for the creation at Stanleyville of a Pasteur institute for the special purpose of furthering the campaign against tropical diseases.

BERLIN

(From Our Regular Correspondent)

Jan. 7, 1928.

The Value of Protective Inoculation Against Diphtheria

During recent decades, Germany has not suffered to an inordinate extent from diphtheria. The extent to which spontaneous retrogression of morbidity and timely administration of diphtheria antitoxin each may be responsible is an open question. An inquiry was instituted by Prof. J. Schwalbe on the incidence of diphtheria and was published in the *Deutsche medizinische Wochenschrift*, of which he is the editor. This brought forth the information that diphtheria in many sections has retrogressed to such an extent that it is sometimes difficult to secure sufficient instruction material for students. Only in a few places does the opposite condition prevail; more particularly, in Berlin. Still, the local increase of diphtheria in a few places has directed attention to active immunization against the disease, and the Prussian Landesgesundheitsrat (council on health), at a meeting held in November, recommended widespread prophylactic inoculation. It confers, in a vast majority of cases, immunity against diphtheria for a considerable period. The basis for such a demand may be found in the observations on New York school children published by the American physicians Park and Zingher. The resolution of the Landesgesundheitsrat states further: "Vaccination against diphtheria, which is harmless if government-tested vaccines are employed and the proper technic is followed, should be carried out at the end of the first year of life. Compulsory vaccination, applicable to all the children of Prussia, does not, for various reasons, appear practicable. Voluntary protection should, however, be applied as generally as possible. Especially, the children in institutions (kindergartens, care-taking institutions, orphans' homes), including the attending personnel; furthermore, the school children in the cities and rural districts having a high incidence of diphtheria should receive such inoculation."

Following this resolution Professor Schwalbe instituted a further inquiry among the directors of the university children's clinics, as to the observations that they have made on the results of protective inoculation against diphtheria. The request was that those who had been in a position to collect evidence should report their personal observations as to the duration of the protection afforded by the vaccine. The results of this inquiry Professor Schwalbe communicates in detail in number 2 of the *Deutsche medizinische Wochenschrift*. Of the replies of the professors reported the following is cited from that of the pediatrician Finkelstein, director of the municipal children's hospital in Berlin: "No subsequent control examinations were made (or, at least, not announced) of the first children who, in 1913-1914 (at the instance of Behring in Germany), were inoculated with a protective vaccine against diphtheria. The longest observations, together with repeated regular testing of the existing immunity, have been reported by Park and Zingher of New York. The protective inoculations were carried out in 1914 (or thereabouts), and the results were tested at intervals of one or two years. The last report I have seen was for the year 1925, and was to the effect that the immunity still persisted almost unchanged and that the observations on the various subjects concerned were very uniform. The duration of the immunity afforded by protective inoculation has thus been demonstrated up to at least ten to eleven years; a still longer immunity is at least highly probable.

"Concerning the effects, or the attainable protection, of inoculation in the face of natural infection with diphtheria, I am unable to express any opinion, since no statistical bases that would support a definite judgment have, to my knowledge, been published. It is, furthermore, not yet proved that

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the 'immunity' produced by the protective inoculation, evidence for which is based on the negative outcome of the Schick test, is in reality synonymous with an increase of immunity, or resistance, to the natural infection.

"Nevertheless, the question as to whether Germany should adopt the protective inoculation that is very generally employed in the United States and many other countries I would answer in the affirmative. However, it should not be forgotten that the protection does not develop until after an interval of from two to four months."

The joint reply from Professor Czerny, the director of the Berlin university children's clinic, and his collaborator Professor Optiz is likewise of interest: "It is established that, depending on the preparation employed, a production of antibodies can be effected in 60, 80, 95 and, according to some statements, as high as 100 per cent of the subjects inoculated. The beginning of the antibody production depends likewise on the method employed. On the basis of observations made during epidemics in institutions, more particularly, it may be assumed that an antitoxin content, such as is established in an effective immunization, furnishes a certain amount of protection against an infection but it does not constitute perfect immunity; for cases of diphtherial infection have been observed (though comparatively seldom) in subjects in whom active immunization has been successful, which is in accord with earlier observations to the effect that even a large amount of antitoxin does not protect against infection. Humoral immunity must not, therefore, without further inquiry, be assumed to be identical with cellular immunity.

"Exact statements with regard to the duration of immunity attained by active immunization can be made only under especially favorable circumstances. Since with increasing age a natural immunity to diphtheria is developed, the later examination furnishes only relative evidence for the duration of the effect. Thus, if immunized young children when examined farther on, during the school period, are found to possess antibodies, these may have developed from the artificial ipoculation or from a spontaneous active immunization. However, from what we know about active immunization, one can count on an immunity extending over several years.

"We are opposed to a general, and still more to compulsory, immunization. We hold rather that its application should be governed by the special local conditions."

The personal experiences of Professor Degkwitz, the director of the Greifswald children's clinic, are likewise worthy of study: "On the basis of the American articles that have appeared in the literature, together with my series of experiments in Munich, three years ago, at which time I vaccinated about 3,000 children in a few weeks, and, lastly, supported by my personal inquiries of various public health services in the United States, which I made in person during my seven months sojourn in different sections of the country, the Landesgesundheitsrat decided to recommend active protective inoculation against diphtheria and to promote its introduction in Germany.

"According to American observations, many hundred thousand persons have remained immune for ten years, and it is to be expected that they will remain immune as long as they live. We have an analogy here in Germany. In this country, where there are no cases of smallpox, a single vaccination at the end of the first year does not suffice to produce a long period of immunity to smallpox. We must be revaccinated. But if a person is vaccinated but once against smallpox and lives in a country in which there are genuine cases of smallpox, he does not need to be revaccinated, for the reason that the smallpox patients in his environment, through their infectivity, take care of revaccination in a natural manner.

"Now, from the standpoint of diphtheria, Germany constitutes an endemic region, with a large number of bacillus carriers. For that reason, those who have received active prophylactic inoculations will naturally be infected again and again—that is to say, revaccinated. Therefore, active protective inoculation against diphtheria in an endemic region will confer as enduring protection as a single vaccination against smallpox in an endemic smallpox area.

"I think, as you do, that the results of compulsory vaccination would be entirely unsatisfactory. Three years ago, in an article in the *Münchener medizinische Wochenschrift*, and two years ago in the Reichsgesundheitsrat (federal council on health), I opposed such innovation when Schlossmann favored making vaccination compulsory in institutions alone. In my opinion, just as much can be accomplished by means of education and skilfully conducted publicity campaigns as by compulsory legislation. Evidence for this conception can be derived from those countries in which the citizens, quite different from here, are trained to become independent individuals and to reject all forms of compulsion."

The highly critical response of Professor Birk, director of the Tübingen children's clinic, is likewise presented: "In 1925, the Landesgesundheitsrat of Württemberg, at the instance of the ministry of the interior, debated the question of active immunization of children against diphtheria. It fell to my lot to open the discussion, and I presented the view that, considering the favorable American experiences, we could scarcely refuse to fall in line and to collect observations on the method, although I did not think that the method was sufficiently developed as yet for introduction into general practice. Since that time, various independent institutions throughout the country have applied to children active immunization against diphtheria. But, owing to the shortness of the time, only the figures of my own clinic (from 1924 on) and of the home for infants, connected therewith, are available.

"I am not in a position to give any information on the practical results of active immunization—that is to say, on the degree of protection against infection and illness afforded those immunized.

"In regard to the Schick test and its relation to immunization and the chances of contracting, later, diphtheria, it may be well to mention that the statistics on the frequency of the Schick reaction among our population have furnished results essentially different from the American statistics usually cited, as may be seen from the adjoining tabulation. The marked increase during the period from the second year of life to the beginning of school, as brought out by the American statistics, is entirely lacking in our statistics.

	American Statistics, Percentage	Our Own Statistics, Percentage
1– 3 months	15	21.5
3– 6 months	30	44
6–12 months	56–91	42
1– 3 years	83	43.4
4– 6 years	53	45
7–10 years	36	41
11–14 years	22	29

"With reference to the effects of immunization on the results of the Schick test, let me state that the Schick test was first applied to all the children; then they were immunized twice, and after an interval of several months they were again subjected to the Schick test. Unfortunately, it has been found difficult to have the children brought in for subsequent control examinations. However, I possess observations made subsequently on twenty-seven children, some of whom were immunized in 1924 or 1925.

"At first—that is to say, during the Schick tests given a few months after immunization—no essential changes in the

numerical proportions could be noted. To be sure, a few children who had reacted positively reacted then negatively, but others who had been negative had become positive. Not until a year had elapsed since the immunization could successful results—viewing the situation numerically—be observed. Then the number of children who gave positive reactions had been reduced by one half. At the end of the second year, the Schick test was applied again, with the result that the proportion of positive and negative reactions had been maintained at the level of the previous year. Immunization had therefore been successful, but it was not a complete success, for it had not proved possible to render all the children negative. Then, too, in some of the children there was a fluctuation in the results of tests; if a child had reacted negatively once, there was no definite assurance that it would continue to react negatively. It would happen that a child which, in 1925, in spite of immunization, had still reacted positively would, in 1926, react negatively, and, in 1927, would react positively again; or that a child which, in 1925 and 1926, reacted negatively would, in 1927, become positive. There are periods in which the children lack the protective substances, although they may have them at other times. Some children always reacted positively. Whether these manifestations are due to peculiar qualities of the person in question, or whether the usual two immunizing injections are not sufficient to render the Schick test negative, though with double doses it can be accomplished, are still matters of controversy.

"But it must not be assumed that a negative Schick test constitutes a guarantee that the person immunized will not contract diphtheria.

"A child was brought to our clinic who appeared to present nasal diphtheria. As there was no danger, the injection of serum was postponed and the Schick test was applied first. The result was negative. Nevertheless, the child had diphtheria, as was confirmed by the bacteriologic examination.

"On the other hand, a positive reaction does not signify, by any means, that the subject is especially liable to contract diphtheria. The nurse in the diphtheria ward of my clinic has always reacted positively to repeated Schick tests, but she has never come down with diphtheria, although for years children with diphtheria coughed in her face almost daily.

"In this connection, it is deserving of mention that formerly we endeavored to immunize all our teaching nurses against diphtheria. We were, however, compelled to give up the practice, for the reason that the reactions to the injections in these adult persons were much too severe.

"In my opinion, the time is not ripe for the introduction of active immunization against diphtheria into general practice. It involves—as is the case with the Schick test—still too many uncertainties. The American researches are, to be sure, very convincing, in view of the large number of subjects immunized, but they must first be supplemented and confirmed by carefully observed individual cases."

Marriages

FREDERICK COOK WARNSHUIS, Grand Rapids, Mich., to Miss Hellen Todt of Kenosha, Wis., February 7.

WILLIAM H. MURPHY, Redwood City, Calif., to DR. JEWYL A. BOOTH of San Francisco, January 23.

CLARENCE S. SUMMERS to Miss Minnie May Sweets, both of Tulsa, Okla., Dec. 25, 1927.

JOHN P. J. SHORE, Sailor Springs, Ill., to Miss Pauline Evans of Clay City, recently.

WILLIAM SIDNEY BROWN to Miss Jewell Taylor, both of St. Louis, January 21.

Deaths

Karl Konrad Koessler ✠ Chicago; University of Vienna, Austria, 1905; associate clinical professor of medicine, Rush Medical College and professor of experimental medicine, University of Chicago; member of the Otho S. A. Sprague Memorial Institute; the American Society for Clinical Investigation, the American Association of Pathologists and Bacteriologists, the American Society for Experimental Pathology, the American Association of Biological Chemists, and the Society of American Bacteriologists; past president of the Chicago Pathological Society, the Chicago Society of Internal Medicine and the American Society for the Study of Allergy; on the staffs of the Cook County Hospital and St. Luke's Hospital; conducted research on scarlet fever and other diseases, and more recently on the treatment of pernicious anemia by means of special diet; aged 48; died, February 13, of chronic nephritis and heart disease.

George Reese Satterlee ✠ New York; Columbia University College of Physicians and Surgeons, New York, 1898; member of the American Gastro-Enterological Association; president of the American Stomatological Association; formerly instructor in histology, embryology and medicine, University and Bellevue Hospital Medical College; attending physician to the Fordham Hospital, New York, and consulting physician to the New Jersey State Hospital, Trenton; at various times on the staffs of the Washington Heights, St. Vincent's, Gouverneur, Midtown, Bellevue, Roosevelt and Presbyterian hospitals, New York; served during the World War; author of "Outlines of Human Embryology," and numerous articles on gastro-intestinal disorders; aged 54; died, February 8, of angina pectoris.

Clarence Wilson East ✠ Springfield, Ill.; Northwestern University Medical School, Chicago, 1904; chief of the division of child hygiene and public health nursing of the Illinois State Department of Public Health, 1918-1923; medical director of the Society for Crippled Children of Illinois; medical superintendent of St. John's Sanitarium; aged 58; died, January 28, at Irvington, Ala., of cardiorenal disease.

George De Bruce Johnson, Oxford, N. Y.; Medical Department of the University of the City of New York, 1885; member of the Medical Society of the State of New York; past president of the Chenango County Medical Society; aged 65; died, January 13, at the Muhlenberg Hospital, Plainfield, of shock following a gastro-enterostomy for ulcer of the duodenum.

Wilbur Everett Postle, London, Ohio; Eclectic Medical Institute, Cincinnati, 1890; formerly professor of nervous and mental diseases at his alma mater; at one time superintendent of the Shepard (Ohio) Hospital; aged 67; died, January 24, of arteriosclerosis and myocarditis.

Charles Jenkins Montgomery, Augusta, Ga.; University of Pennsylvania School of Medicine, Philadelphia, 1892; member of the Medical Association of Georgia; formerly professor of medical jurisprudence and hygiene, University of Georgia Medical Department; at one time county physician; aged 59; died, January 14, of heart disease.

Charles Erastus Darrow ✠ Rochester, N. Y.; Medical Department of Columbia College, New York, 1881; member of the American College of Physicians; consulting physician to the Rochester General Hospital; aged 72; died, January 2, of angina pectoris and endocarditis.

Dabney Berrey, San Antonio, Texas; University of Alabama School of Medicine, Tuscaloosa, 1881; member of the State Medical Association of Texas; past president of the Bexar County Medical Society; aged 66; died, Nov. 1, 1927, of angina pectoris.

Henry Clay Lacy ✠ New Brighton, Pa.; Jefferson Medical College of Philadelphia, 1908; formerly on the staffs of the Beaver Valley General Hospital, New Brighton and the Providence Hospital, Beaver Falls; aged 52; died, January 1, of bronchial asthma.

Frank Dalmon Stafford, North Adams, Mass.; University of Vermont College of Medicine, Burlington, 1878; formerly mayor of North Adams; president of the staff of the North Adams Hospital; aged 71; died, January 21, of acute dilatation of the heart.

Michael F. Dockery ✠ Iron Mountain, Mich.; Rush Medical College, Chicago, 1891; on the staff of the Iron Mountain General Hospital; aged 67; died, in January, at the Presbyterian Hospital, Chicago, of cerebral embolism and mesenteric thrombosis.

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Lawson M. Johnson, Yatesville, Ga.; University of Georgia Medical Department, Augusta, 1883; member of the Medical Association of Georgia; formerly president of the Yatesville Board of Health; aged 77; died, January 11, of diabetes mellitus.

Lorenzo D. Stewart, Perry, Okla.; University of Louisville (Ky.) School of Medicine, 1907; member of the Oklahoma State Medical Association; aged 51; died suddenly, January 14, at a hospital in Enid, of heart disease.

Yves Reni Le Monnier, New Orleans; Medical Department University of Louisiana, New Orleans, 1868; Civil War veteran; for many years parish coroner; aged 84; died, January 14, of arteriosclerosis and angina pectoris.

Michael O'Brien Ward, Montreal, Que., Canada; McGill University Faculty of Medicine, Montreal, 1875; for twenty-one years statistician of the city department of health; formerly a druggist; aged 75; died, Dec. 27, 1927.

Charles Augustine Phillips, Brooklyn; Long Island College Hospital, Brooklyn, 1896; medical examiner for the board of education; visiting physician to St. Peter's Hospital; aged 54; died, January 26, of carcinoma of the lung.

William Bascom Bissell, Lakeville, Conn.; Columbia University College of Physicians and Surgeons, New York, 1891; member of the Connecticut State Medical Society; aged 62; died, Dec. 30, 1927, of hypernephroma.

Charles Elmer Stagner, Tracy, Calif.; Cooper Medical College, San Francisco, 1912; member of the California Medical Association; aged 44; died, January 28, at the Dameron Hospital, Stockton, of pneumonia.

William Uberto Taylor, Mooers, N. Y.; University of Vermont College of Medicine, Burlington, 1880; member of the Medical Society of the State of New York; aged 75; died, January 13, of angina pectoris.

Margaret Teigen, Everett, Wash.; University of Illinois College of Medicine, Chicago, 1904; aged 57; died, January 10, at the General Hospital, of injuries received when struck by an automobile.

Richard Henry Rush ✠ Gorman, Texas; Memphis (Tenn.) Hospital Medical College, 1893; formerly on the staff of the Blackwell Sanitarium; aged 75; died suddenly, January 23, of heart disease.

Boyle Vance, Chicago; University of Michigan Homeopathic Medical School, Ann Arbor, 1889; aged 61; was accidentally shot and killed, February 5, at his home in Homewood, while cleaning a gun.

John Cole, Williamsfield, Ill.; College of Physicians and Surgeons, Keokuk, Iowa, 1882; Civil War veteran; formerly a druggist; at one time postmaster of Elmore; aged 80; died, Dec. 22, 1927.

Vernon W. Stiles, Sparta, Wis.; Hahnemann Medical College and Hospital, Chicago, 1888; formerly on the staff of St. Mary's Hospital; aged 66; died, January 16, of cerebral hemorrhage.

Guy Fairfax Whiting, Washington, D. C.; University of Maryland School of Medicine, Baltimore, 1878; aged 71; died, Dec. 30, 1927, of nephritis, myocarditis and diabetes mellitus.

Jesse M. Stukey, Lancaster, Ohio; Kentucky School of Medicine, Louisville, 1889; member of the Ohio State Medical Association; aged 66; died, January 11, following a long illness.

Paul Reed Rockwood ✠ Baltimore; State University of Iowa College of Medicine, Iowa City, 1921; member of the American Society of Clinical Pathologists; aged 30; died, Dec. 28, 1927.

Arthur Lee Tumbleson ✠ Baltimore; Baltimore Medical College, 1901; on the staff of the Mercy Hospital; aged 60; died, January 28, of chronic myocarditis and cerebral sclerosis.

Charles Burton Gay, Syracuse, N. Y.; University of Buffalo School of Medicine, 1893; aged 61; died, January 13, at his home in Warners, of diabetes mellitus and acute nephritis.

John Hunton Baker, Piqua, Ohio; Starling Medical College, Columbus, 1895; member of the Ohio State Medical Association; aged 59; died, in January, of heart disease.

Wayne Anthony Whitt, St. Louis; St. Louis University School of Medicine, 1904; aged 47; died, Dec. 24, 1927, at the City Hospital, following an operation for carcinoma.

James Branyan Hall, Mansfield, Ohio; Hahnemann Medical College and Hospital of Philadelphia, 1871; aged 80; died, January 22, of chronic valvular heart disease.

Morton E. Hundley ✠ Martinsville, Va.; University College of Medicine, Richmond, 1899; aged 52; died, January 2, at Saint Moritz, Switzerland, of pneumonia.

Charles Olin Files, Cape Cottage, Maine; Medical Department of Columbia College, New York, 1870; aged 80; died, Dec. 25, 1927, at Portland, of angina pectoris.

Daniel Dixie Hollis, Sulligent, Ala. (licensed, Alabama, 1884); formerly city and county health officer; aged 67; died, Dec. 9, 1927, of chronic heart disease.

Walter Byron Jameson ✠ Augusta, Ga.; University of Georgia Medical Department, Augusta, 1924; aged 34; died, January 10, of agranulocytic angina.

Joseph Sheafe, Kansas City, Mo.; State University of Iowa College of Medicine, Iowa City, 1892; aged 61; died, January 16, of nephrolithiasis and uremia.

Homer John Clarke Reed, Ralston, Iowa; College of Physicians and Surgeons, Keokuk, 1875; also a druggist; aged 74; died, Dec. 16, 1927, of heart disease.

Robert Morris Tudor, Philadelphia; Hahnemann Medical College and Hospital of Philadelphia, 1893; aged 92; died, January 13, of hypostatic pneumonia.

Hugh F. Waters ✠ Nekoosa, Wis.; Detroit College of Medicine and Surgery, 1903; aged 52; was found drowned in the Wisconsin River, January 13.

Joseph Myron Stone, Ann Arbor, Mich.; Albany Medical College, 1883; aged 67; died, January 14, of acute dilatation of the heart and arteriosclerosis.

William D. Boyd, Waxahachie, Texas; Missouri Medical College, St. Louis, 1882; aged 70; died, Oct. 31, 1927, following a fall from his office window.

Mosby Clayton Weaver, Batesville, Ark.; Louisville (Ky.) Medical College, 1877; aged 72; died, January 16, as the result of a cerebral hemorrhage.

Charles David Forney, Wichita, Kan.; St. Louis College of Physicians and Surgeons, 1902; aged 50; died, January 17, at Wilmore, of heart disease.

Robert R. Arnold, Humeston, Iowa; State University of Iowa College of Medicine, Iowa City, 1877; aged 80; died, Oct. 2, 1927, of angina pectoris.

Charles M. Hawley ✠ Painesville, Ohio; Eclectic Medical College of Pennsylvania, Philadelphia, 1871; aged 78; died, January 23, of endocarditis.

Karl Alfred Helgeson, Newark, N. J.; Columbia University College of Physicians and Surgeons, 1903; aged 48; died, January 28, of heart disease.

Samuel Levine, Union, N. J.; Eclectic Medical College, Cincinnati, 1925; aged 29; died, January 9, of chronic nephritis and heart disease.

Eutaw D. Neighbors, Lewistown, Md.; College of Physicians and Surgeons, Baltimore, 1882; about 69; died, January 12, of heart disease.

John B. Armstrong, Gardner, Kan.; College of Physicians and Surgeons, Keokuk, Iowa, 1868; aged 84; died, Sept. 25, 1927, of angina pectoris.

Richard L. Goodman, New Albany, Miss. (licensed, Mississippi, 1886); aged 70; died, in December, 1927, as the result of cerebral hemorrhage.

Adelbert W. Truman, Rochester, N. Y.; Eclectic Medical College of Pennsylvania, Philadelphia, 1870; aged 81; died, Oct. 3, 1927, of senility.

Ferdinand Wilsey Merrill, Winn, Maine; Medical School of Maine, Portland, 1872; aged 85; died, Nov. 28, 1927, of cerebral hemorrhage.

James Purcell Geppert, Cincinnati; Pulte Medical College, Cincinnati, 1877; aged 77; died, January 17, of cerebral hemorrhage.

William Leslie Gray, Pembroke, Ont., Canada; McGill University Faculty of Medicine, Montreal, Que., 1881; died, Nov. 6, 1927.

Joseph Fleming Stewart, Griffin, Ga.; Atlanta Medical College, 1891; aged 57; died, January 10, of heart disease.

CORRECTION

Dr. Frank Woodruff Chapin is Not Dead.—The report of the death of Dr. Frank Woodruff Chapin, New York, in THE JOURNAL, February 4, was an error. A Dr. F. W. Chapin, who graduated from the same school in the same year and of whom these headquarters has had no information since graduation, is reported to have died in Italy.

Bureau of Investigation

MORE MISBRANDED NOSTRUMS

Abstracts of Notices of Judgment Issued by the Food, Drug and Insecticide Administration of the United States Department of Agriculture

Depurativo Cacique.—In March, 1927, the United States Attorney for the District of Porto Rico filed a libel, praying seizure and condemnation of a number of bottles of "Depurativo Cacique," at Camuy, Porto Rico, alleging that the product was being offered for sale in the Territory of Porto Rico and that it was misbranded in violation of the Food and Drugs Act. When analyzed by the federal chemists, the stuff was found to consist essentially of mercuric chloride, potassium chloride, sodium sulphate, alcohol and water, with sarsaparilla flavoring. It was sold as a remedy for syphilis, skin affections, chronic rheumatism, herpes and various other conditions. In April, 1927, Francisco de Jesus of Camuy, Porto Rico, appeared and admitted the allegations of the libel. Judgment of condemnation and forfeiture was entered, and the court ordered that the product be released to the claimant, upon payment of the cost of the proceedings and the execution of a bond, conditioned that the stuff be not sold or disposed of contrary to law.—*(Notice of Judgment 15063; issued December, 1927.)*

Protecto Spray.—The Salol Chemical Company of Chicago shipped in February, 1927, to Los Angeles, California, a quantity of "Protecto Spray" that the authorities held was misbranded. When analyzed, it was found to consist of a solution in glycerine of carbolic acid, salicylic acid, boric acid and a trace of volatile oil. It was sold under the claim that it was a remedy for the treatment and prevention of female diseases, leucorrhea, "and as a Preventative." In April, 1927, the court adjudged the product misbranded and ordered that it be destroyed.—*(Notice of Judgment 15066; issued December, 1927.)*

Reno's New Health Uterine Tonic.—In February, 1926, S. B. Leonardi and Company of New York City are alleged to have shipped to San Juan, Porto Rico, a quantity of "Reno's New Health Uterine Tonic" that the federal authorities charged was misbranded. Analysis showed the article to contain extracts of vegetable material, including berberine, alcohol and water. The therapeutic claims made for the preparation were false and fraudulent, and in May, 1927, S. B. Leonardi and Company, Inc., appeared as claimant for the property and admitted the material allegations of the libel. The court entered judgment of condemnation and forfeiture, and ordered that the product be released to the claimant, upon payment of the costs of the proceedings and the execution of a bond, conditioned that the stuff should not be sold or otherwise disposed of without first having been properly labeled.—*(Notice of Judgment 15071; issued December, 1927.)*

Kentos.—In February, 1927, the Kentos Laboratories, Inc., shipped from Los Angeles, California, to Chicago, Illinois, a quantity of "Kentos," which the federal officials held was misbranded. Analysis showed the article to consist essentially of zinc sulphate, common salt and water, with traces of potassium chlorate and volatile oils. It was sold under the claim that it was a remedy for pyorrhea, canker sores, cold sores, and to have, among its active ingredients, potassium permanganate, copper sulphate and sodium borate. The federal chemists reported that it did not contain compounds of copper, manganese nor boron, and they reported, further, that, undiluted, it failed to kill a culture of *M. aureus* at body temperature in five minutes. In June, 1927, judgment of condemnation and forfeiture was entered, and the court ordered that the product be destroyed.—*(Notice of Judgment 15074; issued December, 1927.)*

Vernas Lotion.—The Vernas Chemical Company of Brooklyn, New York, shipped in November, 1926, a quantity of "Vernas Lotion," which the federal authorities charged was misbranded. When analyzed the preparation was found to consist essentially of zinc chloride (0.4 per cent), cassia oil, glycerine, alcohol and water, colored green. Undiluted, it failed to kill a culture of *M. aureus* at 40° C. It also failed to kill a culture of *B. typhosus* at 17° C. It was sold under the claim that it was a prophylactic for surgical, dental or household employment, especially serviceable in inflammatory infections of the mouth, nose and throat, and also for burns, wounds and abrasions. The claims regarding the curative and therapeutic effects were declared false and fraudulent, and in July, 1927, judgment of condemnation and forfeiture was entered, and the court ordered that the product be destroyed.—*(Notice of Judgment 15075; issued December, 1927.)*

Sanagono.—In December, 1926, the United States Attorney for the District of Porto Rico filed a libel praying for the seizure and condemnation of a number of bottles of a preparation known as "Sanagono" that were at Santurce, P. R. The government officials charged that the article was sold in Porto Rico by the Liaju Company of Santurce, and declared that the preparation was misbranded in violation of the Food and Drugs Act. When analyzed by the Bureau of Chemistry, Sanagono was found to be a solution of alum, zinc sulphate and carbolic acid. It was sold for injection purposes, under the claim that it would cure gonorrhea. These claims were declared false and fraudulent, and in January, 1927, judgment of condemnation and forfeiture was entered, and the court ordered that the product be destroyed. —*(Notice of Judgment 14948; issued June, 1927.)*

White Diarrhea Remedy.—The Barnes Emulsion Company of Gardena, California, shipped to Massachusetts in March, 1927, a quantity of "White Diarrhea Remedy," which the federal officials declared was misbranded. When analyzed by the Bureau of Chemistry, the preparation was found to be a solution of iron (ferrous) sulphate in water, the solution containing a little over 9 per cent of the iron salt. Bacteriologic examination showed that the product was neither antiseptic nor germicidal. The claim was made that this preparation was highly antiseptic and germicidal, which claims were declared false and fraudulent. In April, 1927, judgment of condemnation and forfeiture was entered, and the court ordered that the product be destroyed.—*(Notice of Judgment 14970; issued June, 1927.)*

Sannette.—The Sannette Chemical Company, Cincinnati, Ohio, shipped in November, 1926, a quantity of "Sannette" which the federal authorities declared was misbranded. The preparation was labeled in part:

"The Chloride of Zinc Antiseptic Powder. . . . Healing . . . Antiseptic."

"Prepared especially for the vaginal douche. Superior to Bichloride, Permanganate of Potash or the Cresol compounds. Indications—Leucorrhea, gonorrhea, vaginitis, vulvitis, metritis, cervicitis. Relieves any condition charactered by odor, inflammation or discharge."

When analyzed by the Bureau of Chemistry, Sannette was found to consist essentially of boric acid, alum and zinc salts, with a small amount of methyl salicylate, phenol and menthol. As the preparation contained no ingredients, or combination of ingredients, capable of producing the curative and therapeutic effects claimed, the claims were declared false and fraudulent, and in January, 1927, judgment of condemnation and forfeiture was entered, and the court ordered that the product be destroyed.—*(Notice of Judgment 14860; issued June, 1927.)*

Medicine as a Science.—Medicine occupies a peculiar position among the sciences. By workers in other fields of science, medicine has been looked on askance, even disregarded. In most of the classifications of science it is not even mentioned. It is even claimed that there is no such thing as a science of medicine. On the one hand, as medicine, it has been scorned and neglected, and on the other, as the medical sciences, it has been honored and respected, and held to embrace within its borders such important divisions of science as anatomy and physiology.—Cole, Rufus: *Science* **67**:51 (Jan. 20) 1928.

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Correspondence

IRRADIATION OF CHILDREN PRIOR TO SURGICAL OPERATION

To the Editor: — Under Queries and Minor Notes (THE JOURNAL, January 7) you state that you do not know of any hospital that irradiates all children prior to operation.

It is a rule of the Boston City Hospital that no patient under 16 years of age be anesthetized until a roentgenogram of the chest has been made to rule out (or in) an enlarged thymus. If a large thymus is found (which occurs in about 3 per cent) none except emergency operations are performed until the thymus has been irradiated and shrunken to its normal size for the age of that particular patient. This usually requires from three to six exposures.

I am not stating these facts for the hospital, but as a recent house officer I know the procedure.

As a nose and throat man I believe that in the vast majority of cases bleeding following tonsillectomy is due to injury to the pillars or pharyngeal wall or to an abnormally large tonsillar artery or vein. I never do a coagulation time test or a bleeding time, nor is one done at the Boston City Hospital. P. G. BERMAN, M.D., Lowell, Mass.

THE PENETRATION OF ULTRAVIOLET RAYS INTO ANIMAL TISSUE

To the Editor:—In a recent paper (THE JOURNAL, January 21) Macht, Anderson and Bell publish results of measurements which may lead to a false conception concerning the penetration of ultraviolet rays through animal tissues. Two methods are used for the determination of the transmitted radiation, a photographic method with use of a spectograph and a thermopile with use of a monochromator. Although the correctness of the photographic observation cannot be doubted, it seems advisable to estimate the percentage of the radiation transmitted which caused the ultraviolet spectral lines to appear on the plate. The exposures were made by air-cooled and water-cooled mercury arcs at very short distances (from 5 to 8 cm. and 20 cm., respectively) with a very wide slit (about 1 mm.). The time of exposure varied from one-half to five minutes and was from five to ten seconds in two cases (cat, 0.9 mm.; rabbit, 1 mm.). With the slit directly illuminated by the lamp an exposure of about one-fifth to one twentieth second should produce these lines with a similar average density as the weakest lines in the absorption spectrums. This assumption is also substantiated by figure 3 *A*, which shows the weak lines below 2,480 angstrom units with an exposure of one second. By comparing the respective exposure times and assuming a Schwarzschild factor of about 0.76, one will find that the transmitted shortest rays represent about 1 per cent of the incident radiation; the transmission of shorter rays, not blackening the film, amounts to less than 0.1 per cent. These figures are somewhat larger than those of Hasselbalch and correspond quite well with those that I have obtained in recent work (conducted with J. Kunz of the Physics Department, University of Illinois, and to be published shortly in the *Archives of Physical Therapy, X-Ray, Radium*). Toward the visible part and in the visible spectrum the penetration is of course very much greater.

The observations of Macht, Anderson and Bell with thermopile and monochromator give results which differ entirely from the ones obtained on living tissue by the first method, in two directions: First, the penetration of the ultraviolet is much greater, namely, between 11.4 and 56.3 per cent, for 1.175 mm. albino rabbit skin; and, second, the penetration increases toward 2,800 and again toward 2,537 angstrom units, while the first observations never show any penetration below 2,800. These observations are also in strongest contradiction to the older literature as well as to our newest measurements. The explanation of the failure of the measurements of Macht and his co-workers lies in the fact that the thermopile registers the scattered light of the monochromator (1 prism, 5 lenses) much stronger than the very faint far ultraviolet lines (which carry a very minute energy). Unless every trace of scattered (ultraviolet, visible, infra-red) rays are eliminated by additional prisms, lenses, slits, etc., errors of such magnitude occur that make the results illusionary. Even with most of the scattered light carefully removed, a control measurement is necessary to establish the magnitude of the remaining error. With the arrangement as given in the publication of Macht and his co-workers, a window glass inserted in the beam before the thermopile would apparently transmit a magnitude of about 50 per cent at about 2,800 angstrom units, although in reality it does not transmit any trace of light. The authors admit "that interposing a quartz plate or the living tissue did not materially alter the area of light on the pile or the distribution." It is to be regretted that they did not interpose a glass plate, as this would have detected the error. As to the results, it is known that the absorption of proteins and consequently living tissue decreases slightly near 2,500 and 2,600 angstrom units before the end absorption sets in; but the decrease from 3,700 to 2,800 angstrom units is absolutely out of the question.

As a minor mistake I should like to correct the term "absorption bands of the mercury vapor" by the proper term "emission lines," before the improper term starts confusion.

ALBERT BACHEM, PH.D., Chicago.
Professor of Biophysics, University of Illinois, College of Medicine.

ARGYRIA FROM HAIR DYES

To the Editor:—The development of argyria from the use of hair dyes containing silver salts has been suggested as a possibility and therefore such compounds have not met with the approval of those who have investigated the harmful effects of cosmetic preparations. Cole (The Dermatoses Due to Cosmetics, THE JOURNAL, Jan. 14, 1924, p. 104; Investigation of Injuries from Hair Dyes, Dyed Furs and Cosmetics, ibid., Feb. 5, 1927, p. 397) and McCafferty (Hair Dyes and Their Toxic Effects, *Arch. Dermat. & Syph.* **14**:136 [Aug.] 1926) are of the opinion that argyria may develop, but no definite instances are reported. This of course is known to those who market such dyes and may be used as an excuse to exclude them from any possible legislation against those proved to be harmful by actual case reports.

In the recent flurry for expert opinion (Expert Opinion on Hair Dyes—Take It or Leave It, Current Comment, THE JOURNAL, Oct. 29, 1927, p. 1521) I was also prevailed on to look into the matter of toxic hair dyes and could not find any direct evidence of an actual case of argyria from the use of a silver-containing hair dye, yet I could not concede that such a possibility was not in the offing and therefore gave a negative report.

More recently I have come across an actual case report by Sainz de Aja (Cutaneous Argyria of Unusual Origin, *Actas dermato-sifilog.* **16**:148, 1924). His patient was a woman with gray hair, who after using a hair dye containing silver nitrate (percentage not given) for several months, developed dark spots on the face, cheeks, sides of the neck, occiput and forearms. There was less pigmentation on the scalp than on the face and neck. Although he was unable to find a similar case in the literature, he strongly advises against the use of such hair dyes, as the resulting pigmentation is permanent.

In view of this case report and possibly others that may come to light after still further investigation, I think it advisable not to recommend such hair dyes, as they are potentially dangerous. My attention has been called to the February issue of *Good Housekeeping*, in which another case of argyria from a silver-containing hair dye is reported by a physician writing for this magazine—an unusual case in an unusual place to report it.

E. W. ABRAMOWITZ, M.D., New York.

Queries and Minor Notes

ANONYMOUS COMMUNICATIONS and queries on postal cards will not be noticed. Every letter must contain the writer's name and address, but these will be omitted, on request.

TREATMENT OF PRURITUS ANI

To the Editor:—Please send to me information relative to the treatment of pruritus ani. A patient who has had frequent roentgen-ray treatments cannot take any more on account of the skin reaction. Information concerning ethyl chloride treatment will be appreciated.

JOHN RICHARD PORTER, M.D., Lebanon, Ind.

ANSWER.—The treatment of pruritus ani depends on a careful study of the individual case in a search for the etiologic factor. Any constitutional disorder, such as diabetes, constipation or pelvic disease, should be corrected and the diet regulated. Local treatment will give relief in many cases. MacKee has found roentgen rays a valuable agent in 210 cases of pruritus of the anus and vulva, but states that recurrences are common. He admits that the cause could not be ascertained in any of these cases. In many cases of apparently neurotic origin, relief will be secured by hot water applications followed by 33 per cent calomel dusting powder. Carbon tetrachloride (carbonei tetrachloridum, U. S. P.) is recommended by Alderson (*California & West. Med.* **26**:51 [Jan.] 1927) as a cleansing as well as a remedial agent, either pure or with 0.5 per cent phenol (carbolic acid) added. Some authors are enthusiastic about the effect of vaccines made from *Streptococcus fecalis*. Fissures, when present, should be treated with compound tincture of benzoin or pure phenol. If there is an epidermophyton of the perianal skin, mercurochrome-220 soluble may be used or crude coal tar ointment. No information on the use of ethyl chloride in pruritus ani is available.

TREATMENT OF OZENA

To the Editor:—In THE JOURNAL, November 5, page 1643, you mention diphtheria anatoxin as a successful treatment for ozena. Does anatoxin mean the same as toxin-antitoxin, such, for example, as is distributed free by the Ontario Board of Health for the permanent prevention of diphtheria? If not, could I probably procure the anatoxin from such a firm as Parke, Davis & Co.? I am 65 years of age and have had ozena all my life. The systolic pressure has been 160 for six years, from 180 to 200 every day (p. m.) for the last nine months, though the diastolic has not been higher than 100 except once (120). February 8, my left side was almost completely paralyzed (leg and arm), but I have entirely recovered except the great toe. The heart is smaller than normal, the kidneys are almost certainly healthy. Would the ozena tend to raise systolic pressure? I think I remember seeing in THE JOURNAL about three years ago that the x-ray would cure ozena. Would it be worth trying? Would there be any danger of its doing any damage to sight, brain, etc.? I have tried liver extract the last few weeks without result. I have also tried corpus luteum. Thyroid extract (1 grain t. i. d.) sent my pulse up. The only thing that helps the ozena is irrigation with salt or sodium bicarbonate or applying glycerin and dextrose. My weight was 164 in 1921; I cut it to 140 till February 27; now it ranges from 123 to 130 points. Please omit name.

M.D., Ontario.

ANSWER.—We may say that ozena is the foul odor that is often noted in cases of atrophic rhinitis; but not all cases of the latter have the foul odor. The exact etiology has not been determined from the bacteriologic standpoint. At one time the *Coccobacillus foetidus* of Perez was supposed to be the cause, but this has not been definitely proved. A number of bacteria, among them Abel's bacillus and the pseudodiptheria bacillus, have been considered the etiologic factors; but, as previously stated, there is no proof that any one of these or several of them are the cause. Vaccines made from these various bacteria have been used, in the main with unsatisfactory results. In view of the fact that the bacterial cause has not been found, it would be futile to use antitoxin or vaccine prepared from these bacteria. The best treatment found for ozena has been that of a thorough cleansing of the nose either with solutions of hydrogen peroxide 1 part in 5 to 6 parts of water, or a mild alkaline solution containing sodium bicarbonate. After removing the foul smelling crusts and secretion it is a good idea to massage the nose gently with weak compound solution of iodine containing oil or glycerin. Then the introduction into the nose of liquid petrolatum or petrolatum acts as a sedative and protective to the nasal mucous membrane, when applied several times a day. In other cases a 25 per cent solution of dextrose in glycerin used three or four times a day gives considerable relief. Potassium iodide in doses of from 0.2 to 0.3 Gm. three times a day, well diluted, often increases the secretion of the nose and thereby prevents the adhesion of crusts. In latter years implantation of ivory into the septum and various other operations have been used to a certain extent in the effort to narrow the air space in the nose and thus prevent drying of the secretions.

CAUSES OF WARTS

To the Editor:—Some controversy has arisen regarding the origin of ordinary warts, small cauliflower-like growths, which suddenly appear and disappear. Their behavior seems epidemic to me. I speak of this because at times this occurs in a school where there is a swimming pool which is well cared for, the water being changed often. Could it be possible that this is a coincidence or is it an infection?

J. J. WOOD, M.D., Cicero, Ill.

ANSWER.—Evidence has been published which indicates that warts may be caused by infection with one of the filtrable viruses. This does not occur by indirect means but by direct contact. Picking or cutting the warts causes them to ooze, and the fluid infects other parts of the skin. See the article by Wile and Kingery (THE JOURNAL, Sept. 27, 1919).

TREATMENT OF PSORIASIS

To the Editor:—What would be the best treatment for psoriasis in a woman, aged 20, thin and high-strung, with a slightly enlarged neck, who suffers from constipation and dysmenorrhea, but is otherwise in good health? The lesions extend from the middle of the neck, a strip 1 inch wide, about an inch above the border of the hair line, around and over the ear, following the hair line to the center of the forehead. A few small patches are scattered throughout the scalp. The condition has existed four years. Please omit name.

M.D., Michigan.

ANSWER.—The treatment of psoriasis, irrespective of age, sex, duration or constitution, is unsatisfactory. Lack of knowledge of the etiology of the disease precludes the possibility of permanent cure. Local treatment is still the chief reliance. An ointment of 10 per cent ammoniated mercury and 5 per cent salicylic acid in ointment of rose water is fairly effective for lesions on the scalp and adjacent regions. Crude coal tar ointment may also be used but is objectionable on account of its color. Any agent that stimulates the pigment supply of the skin will be beneficial. This includes exposure to sunlight or ultraviolet radiation, fractional roentgen-ray treatment and arsenic by mouth. The roentgen ray, of course, should not be used on the scalp. The action of arsenic is uncertain and must be watched. Endocrine therapy offers a promising field for investigation, particularly the role of the thymus gland.

FRONTAL SINUS DISEASE AND SARCOMA OF ORBIT—"COLLOIDAL GOLD"

To the Editor:—1. Are there many cases on record of frontal sinus disease and sarcoma of the orbit in the same patient? In such a case could the infection be considered as the cause of the tumor growth? I did a modified Killian operation on a patient with exophthalmos and a history of nasal discharge and polypi, after intranasal methods failed to give relief. The large frontal sinus was found full of pus. Under the periosteum at the upper nasal angle of the orbit there was a mass about the size of a large bean. The floor of the frontal sinus was perforated. The first report on this mass was "nonmalignant." A later report from another laboratory was "malignant, sarcoma." Before operation the gland below the ear was swollen. The patient thinks that the swelling has decreased in size. 2. Is Dr. Ochsner's collodaurum of any value in inoperable malignant disease?

H. F. CURTIS, M.D., Fort Scott, Kan.

ANSWER.—1. Occurrence of frontal sinus disease and sarcoma of the orbit in the same patient is rather uncommon. It seems quite likely that sarcoma was first present and then a secondary infection occurred which resulted in the pathologic conditions reported.

2. "Colloidal Gold" was developed by Professor Louis Kahlenberg and Dr. Edward H. Ochsner. It is claimed that the remedy has proved far superior to the roentgen ray and

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radium in the treatment of inoperable cases of cancer and also as a postoperative treatment. As evidence for the claims, the manufacturer, Kahlenberg-Klaus Co., referred to a publication by Dr. Ochsner. The Council on Pharmacy and Chemistry examined this evidence and reported (THE JOURNAL, Jan. 31, 1925, p. 387) that until more critically studied cases, supported by microscopic examination of the tissues, are reported in which there has been demonstrable retrogression or disappearance of the tumors, there is no reason for believing that "Colloidal Gold" offers anything more in the treatment of carcinoma than do the other colloidal preparations that have preceded it.

From the circular matter that is sent out for Collodaurum by the Kahlenberg Laboratories, Inc. (successor to the Kahlenberg-Klaus Co.), it appears that this is essentially the same as the product formerly marketed as "Colloidal Gold."

Further observations on the use of "Colloidal Gold" in cancer were published by Dr. Ochsner in 1926 (*Illinois M. J.* **50**:30 [July] 1926). These do not seem to permit a revision of the Council's estimate of the product. On the contrary, the new report strengthens the Council's decision. A further publication by Dr. Ochsner (*Internat. J. Med. & Surg.* **40**:100 [March] 1927) does not add anything essentially new. Also, a reference to the preparation which occurs in a report by Soiland, Costolow and Meland on the use of metallic colloids in the treatment of cancer (*Radiology*, June, 1927, p. 469) is not favorable to the product advocated by Dr. Ochsner.

DRUG TO PRODUCE BLEB

To the Editor:—I should like to know a chemical which, when applied to the skin, will produce a bleb with the least local reaction. I am interested only in producing a bleb about the size of a pea. My purpose is to remove scars, and the source of information is a loop "plastic" surgeon who uses some chemical adjacent to the scar. A blister forms painlessly and the skin grows across. I was told that he uses a concentrated solution of mercuric chloride. Will that blister?

M.D., Chicago.

ANSWER.—For the purpose of causing a slight dermatitis and exfoliation of the skin it is recommended to dab on the skin several times a day a 0.5 to 1 per cent solution of mercuric chloride. Stronger solutions will undoubtedly blister. Cantharides collodion, made by percolating 60 parts of cantharides with chloroform, evaporating the chloroform and dissolving the residue in 85 parts of flexible collodion will also answer the purpose. The application for ten or twenty seconds of a pencil of carbon dioxide snow will cause a bulla, and this method is easily controllable.

How much does this benefit the scar? Slightly, perhaps, by causing a temporary increase of circulation. The claim that scars can be removed in this way is ridiculous. The "plastic surgeon" quoted possibly believes that any one easy enough to put up money in advance on such a claim can be easily convinced after the operation that the scar has been benefited, although not removed.

SULPHARSPHENAMINE—UNILATERAL EXOPHTHALMOS AT BIRTH

To the Editor:—1. How does sulpharsphenamine compare with neoarsphenamine and arsphenamine in toxicity and therapeutic potency? Are there any special contraindications to the use of sulpharsphenamine? Are there any advantages except the lack of local irritation when injected subcutaneously or intramuscularly in the use of sulpharsphenamine? 2. What are the possible causes of a unilateral exophthalmos noted at birth or a few days after? The labor was not difficult in this case. Please omit name.

M.D., Ohio.

ANSWER.—1. According to New and Nonofficial Remedies, 1927, the actions and uses of sulpharsphenamine are the same as those of neoarsphenamine, over which it is claimed to have the advantage of a higher chemotherapeutic index, more prolonged or delayed action, lower toxicity, a somewhat greater stability of solution in the presence of air, and of permitting subcutaneous injection. An excellent report of the advantages and disadvantages of sulpharsphenamine in syphilis, as found by Kolmer, is given in his recent book "Principles and Practice of Chemotherapy" (Philadelphia, W. B. Saunders Company, 1926). In summing up the discussion, Kolmer says: The chief advantages of sulpharsphenamine are ease of administration, that subcutaneous or intramuscular injections may be given and that, by the latter route, the compound possesses the same or better specific spirocheticidal effects than neoarsphenamine by intravenous injection. For my own part, I still prefer intravenous injections of the neoarsphenamine I have been using for years for the treatment of acute early syphilis; for the treatment of chronic syphilis of adults and especially neurosyphilis and congenital syphilis of children, however, I believe that sulpharsphenamine by intramuscular injection is worthy of trial. . . . As stated by Boone and Welch, sulpharsphenamine by intramuscular injection is particularly well adapted for the treatment of congenital syphilis, and Fergusson and others have found it well adapted for the treatment of syphilis afloat on war vessels. More recently, Fordyce, Rosen and Myers have reviewed the literature on sulpharsphenamine along with their own laboratory and clinical investigations and state that the compound must be used with caution from the standpoint of reactions and purpura, that it is two and one-half times less active than neoarsphenamine therapeutically, that it has not shown any special affinity for the central nervous system, and that clinically no superior results were noticeable.

2. Reports of such trouble are not available. Ballantyne has something to say about thyroid deficiencies and hypertrophies in the new-born but it is evident that he did not find records of exophthalmos in the new-born. A unilateral exophthalmos suggests some congenital defect involving the eye or some injury connected with labor. The fact that the delivery was apparently spontaneous and without evident difficulties would not rule out the possibility of the eye on the affected side having been injured in some way during the course of labor.

ICE WATER IN OTITIS MEDIA—APPENDICITIS IN CHILDREN

To the Editor:—1. Is it good treatment to drop ice water into the ear of a child suffering from acute otitis media? 2. In acute appendicitis is the walling off in children as rapid, complete and effectual as in adults? Is there an indisposition in children to localize, and for this reason should a child be operated on more quickly than an adult?

E. C. MCMULLEN, M.D., Pine Bluff, Ark.

ANSWER.—1. The rationale of the use of ear drops in acute otitis media depends on the anesthetic action of the solution used; notably the phenol in the familiar phenol-glycerin preparations; secondly, the weight of a viscid solution against an inflamed drum may have some effect. The use of ice water has little, if anything, to recommend it.

2. Localization of a peritonitis is less likely to occur in infants than in adults. General peritonitis is a common complication and is the usual cause of death, although the infants withstand it fairly well. Secondary abscesses are relatively common.

The power of adhesion lies in the exudation from the omentum and the peritoneum. It has been shown that the omentum produces more exudation, which contains more fibrin and bactericidal properties than that of the peritoneum. The less frequent localization of a peritonitis may be partly due to the fact that the omentum is imperfectly developed in early months of life and partly to the lessened immunity and lack of reaction to infection.

In a review of 132 cases of acute appendicitis in infants and young children by Holt, in "Diseases of Infancy and Childhood" (New York, D. Appleton & Co.), the mortality was 38 per cent. The prognosis is bad because of the difficulties in diagnosis and the late resort to operation.

Immediate operation should be performed in all cases of acute appendicitis in children as it is impossible to foretell the outcome and there is less chance of localization. The younger the child, the greater is the emergency.

POSSIBILITY OF CONGENITAL MALARIA

To the Editor:—Please inform me as to why a child cannot be born with malaria even though the pregnant mother has contracted the disease during the last part of the ninth month. Please omit name.

M.D., New Jersey.

ANSWER.—A child whose mother contracts malaria during pregnancy can be born with the disease, especially if the mother has a severe attack. Usually, however, babies born of mothers who have malaria do not show typical signs and symptoms of the disease. In Williams' fifteen cases of malaria complicating pregnancy, not one of the babies showed the plasmodium in the blood; but Bodenhäuser, Deromps and Kolloch report cases of congenital malaria. Not all babies born of mothers who have malaria show the disease because the placenta is usually an effective barrier against the plasmodium.

An important case report and review of the literature is the following:

Arias Aranda, C.: A Propósito del Paludismo Congénito. *Archivos Latino-Americanos de Pediatria* **15**:533 (Sept.) 1926.

Medical Education, Registration and Hospital Service

COMING EXAMINATIONS

ALASKA: Juneau, March 6. Sec., Dr. Harry C. De Vighne, Juneau.
CALIFORNIA: Los Angeles, Feb. 27. Sec., Dr. Charles B. Pinkham, 623 State Bldg., San Francisco.
COLORADO: Denver, April 3. Sec., Dr. Philip Work, 324 Metropolitan Bldg., Denver.
CONNECTICUT: Hartford, March 13-14. Sec., Reg. Bd., Dr. Robert L. Rowley, 79 Elm St., Hartford. Homeo. Bd., New Haven, March 13. Sec., Dr. Edwin C. M. Hall, 82 Grand Ave., New Haven.
DISTRICT OF COLUMBIA: Washington, April 10. Sec., Dr. Edgar P. Copeland, Suite 110, 1801 Eye St., Washington.
HAWAII: Honolulu, April 9-12. Sec., Dr. James A. Morgan, Room 48 Young Bldg., Honolulu.
IDAHO: Boise, April 3. Commissioner of Law Enforcement, Hon. F. E. Lukens, Boise.
ILLINOIS: Chicago, April 10-12. Supt. of Reg., Mr. V. C. Michels, Springfield.
MAINE: Portland, March 13-14. Sec., Dr. Adam P. Leighton, Jr., 192 State St., Portland.
MASSACHUSETTS: Boston, March 13-15. Sec., Dr. Frank M. Vaughan, 144 State House, Boston.
MINNESOTA: Minneapolis, April 17-19. Sec., Reg. Bd., Dr. A. E. Comstock, 524 Lowry Bldg., St. Paul. Basic Science examinations, April 3. Sec., Basic Science Bd., Dr. E. T. Bell, U. of Minnesota, Minneapolis.
MONTANA: Helena, April 3-5. Sec., Dr. S. A. Cooney, Power Bldg., Helena.
NEW HAMPSHIRE: Concord, March 8. Sec., Dr. Charles Duncan, Concord.
NEW MEXICO: Santa Fe, April 9-10. Sec., Dr. Wm. T. Joyner, Roswell.
OKLAHOMA: Oklahoma City, March 13-14. Sec. Dr. J. M. Byrum, Shawnee.
PORTO RICO: San Juan, March 6. Sec., Dr. Diego A. Biascoechea, 3 Allen St., San Juan.
RHODE ISLAND: Providence, April 5-6. Sec., Dr. B. U. Richards, State House, Providence.
VERMONT: Burlington, Feb. 21-23. Sec., Dr. W. Scott Nay, Underhill.
WISCONSIN: Madison, March 17. Sec., Basic Science Bd., Prof. M. F. Guyer, U. of Wisconsin.

Iowa June Examination

Mr. H. W. Grefe, director of Examinations and Licensure of the Iowa Board of Health, reports the written examination held at Iowa City, June 7-9, 1927. The examination covered 8 subjects and included 100 questions. An average of 75 per cent was required to pass. Eighty-four candidates were examined, all of whom passed. The following colleges were represented:

College	PASSED	Year Grad.	Per Cent
Rush Medical College		(1927)	88.1
University of Illinois College of Medicine		(1927)	87.8
State University of Iowa College of Medicine	81.6, 82, 82.4, 83, 83, 83.4, 83.6, 83.9, 84, 84, 84.1, 84.3, 84.4, 84.4, 84.6, 84.6, 84.6, 84.6, 84.8, 84.8, 84.9, 84.9, 85.6, 85.6, 85.6, 85.8, 85.8, 85.9, 86.1, 86.1, 86.3, 86.3, 86.4, 86.9, 86.9, 86.9, 87, 87.1, 87.1, 87.3, 87.3, 87.5, 87.6, 87.6, 87.6, 87.6, 87.8, 88.1, 88.1, 88.1, 88.1, 88.1, 88.4, 88.6, 88.8, 88.8, 89.4, 89.4, 89.6, 89.6, 89.6, 89.8, 89.9, 89.9, 90, 90.3, 90.4, 90.6, 91.1, 91.4, 91.6, 91.6, 91.9, 92.3, 93, 93.6	(1927)	77, 80.4,
University of Minnesota Medical School		(1927)	84.4
St. Louis University School of Medicine		(1927)	85.6
Creighton University School of Medicine		(1927)	87
University of Toronto Faculty of Medicine		(1926)	84.4

Ohio October Reciprocity Report

Dr. H. M. Platter, secretary of the Ohio State Medical Board, reports that 17 candidates were licensed by reciprocity and 1 candidate was licensed by endorsement of his credentials, Oct. 4, 1927. The following colleges were represented:

College	LICENSED BY RECIPROCITY	Year Grad.	Reciprocity with
Howard University School of Medicine		(1925) (1926) Dist. of Columbia	Kansas
Northwestern University Woman's Medical School		(1901)	Indiana
Loyola University School of Medicine		(1926)	W. Virginia
Indiana University School of Medicine		(1926)	Indiana
Kentucky School of Medicine, Louisville		(1891)	Kentucky
University of Louisville School of Medicine		(1912)	Kentucky
St. Louis University School of Medicine		(1915), (1926)	Missouri
Creighton University School of Medicine		(1920)	Iowa
Cornell University Medical College		(1920)	New York
University of Buffalo School of Medicine		(1898)	New York
Meharry Med. Coll.		(1913) Georgia; (1923) Virginia; (1926)	Louisiana
Medical College of Virginia		(1914)	W. Virginia
McGill University Faculty of Medicine		(1922)	Michigan

College	ENDORSEMENT OF CREDENTIALS	Year Grad.	Endorsement with
Harvard University Medical School		(1924)	N. B. M. Ex.

Book Notices

NOXIOUS GASES AND THE PRINCIPLES OF RESPIRATION INFLUENCING THEIR ACTION. By Yandell Henderson and Howard W. Haggard. American Chemical Society Monograph Series. Cloth. Price, $4.50 net. Pp. 220, with illustrations. New York: Chemical Catalog Company, Inc., 1927.

The monographs of the series to which this belongs are from recognized authorities. Thirty-four previously published, with as many more in preparation, are listed in this volume. The subjects covered are of current interest selected by committees which also choose the authors. The decisions in both instances are details of plans adopted at meetings in 1919 of the Interallied Conference of Pure and Applied Chemistry in London and Brussels. The rapid development of industrial medicine makes this volume timely. Many of the investigations of the authors to whom this topic was wisely referred are known to the medical profession. Others, such as their articles in the *Journal of Industrial Hygiene* and reports made to the New York Bridge and Tunnel Commission and the Bureau of Mines of the Department of the Interior dealing with ventilation of the vehicular tunnel under the Hudson River recently opened, are not as well known to physicians. A large part of the first half of the monograph is devoted to respiration and its control, gas laws, the absorption, distribution and elimination of volatile substances by breathing, and the classification of noxious gases and vapors. Respiration is reviewed in these chapters largely on an engineering basis. In the remaining chapters the various asphyxiating, irritant and anesthetic gases, volatile druglike substances and gases containing metals are dealt with separately, and at the end is a chapter on prevention and treatment of these poisonings. The monograph is for chemists, engineers and others engaged in industry. References to kindred literature are not abundant. They are indispensable to source material, and among them are references to many investigations by the authors. But the bibliography should be increased. The style is vigorous and lively.

CLINICAL LABORATORY PROCEDURES. By George L. Rohdenburg, M.D., Director of Laboratories, Lenox Hill Hospital. The Macewen Memorial Lecture, 1927. Cloth. Price, $3.25. Pp. 266. New York: Macmillan Company, 1927.

In this laboratory manual, the author gives only that method which practical experience indicates is to be preferred. He does not discuss the value of laboratory methods but simply gives the method concisely. He does not furnish a bibliography. The general subjects taken up are those found in most laboratory manuals, beginning with blood counting and ending with histologic technic. The Rohdenburg manual seems to pay especial attention to directions for making up laboratory reagents in connection with the laboratory work concerned. The book is of handy size and the pages on the right are left blank for the taking of notes.

A TEXT-BOOK OF PATHOLOGY. By Francis Delafield, M.D., LL.D., and T. Mitchell Prudden, M.D., LL.D. Revised by Francis Carter Wood, M.D., Director of the Pathological Department, St. Luke's Hospital, New York. Fourteenth edition. Cloth. Price, $10 net. Pp. 1339, with 850 illustrations. New York: William Wood & Company, 1927.

This work owes its origin to the fortunate co-authorship of Prudden in the second edition of Delafield's Handbook of Postmortem Examinations and Morbid Anatomy published in 1885, thirteen years after the first edition. With Prudden's help the scope of the work was much enlarged and the title changed to A Handbook of Pathological Anatomy and Histology with an Introductory Section on Postmortem Examinations and the Methods of Preserving and Examining Diseased Tissues. It also included instructions for "preparing and examining bacteria." There were 575 pages, and the 146 illustrations were from drawings by the authors. The present title was first used with the sixth edition in 1901, when Prudden's management of successive revisions began. With the ensuing years, when Prudden was 70 years old, this task was transferred to Wood, trained to the work through assisting Prudden. This transfer was in 1919 with the

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eleventh edition. Growth of the book to its present size was gradually attained over many years and arrived at about ten years ago.

It is doubtful whether any other treatise on pathology has served as many medical students in this country. Its place was won when similar works in English were few. Its many elaborations have been timely. Not only general pathology and special pathologic anatomy are included, but necropsy technic, ways of preserving tissues, brief summaries of normal anatomy, histologic methods, details of bacteriology and other matters kindred to pathology. Its plain, concise style, largely the work of Prudden, has been commented on favorably in many reviews. A large measure of its success lies in the hundreds of illustrations, many bearing Prudden's initials. Many illustrations occupy an entire page. Some have a white, others a dark or even black background. Figures from new hand drawings, photographs of both gross and microscopic disease and colored plates have been added from time to time, so that an unharmonious diversity has resulted. The chances of finding in the book some mention of whatever is sought are large, but this is matched by the likelihood of disappointment over the scanty information. Profuse references direct the reader to other sources. The chapter on lesions caused by various poisons has been omitted in this edition and others probably will be dropped in future editions, as they can with advantage.

Should commercial expediency and sales profits allow, this work might well appear in separate volumes, each thorough enough to meet the needs of advanced students. With the preliminary education required for medicine and the prevalence of seminars, journal clubs and good medical libraries, the time has passed when an attempt should be made to embody in a single volume information in so many fields in pathology to fulfil the demands of present students of medicine. This is forcibly brought to the attention of medical students by even a cursory acquaintance with standard textbooks on pathology in languages other than English.

DER TONUS DER SKELETTMUSKULATUR. Von Dr. E. A. Spiegel, Privatdozent, Assistent am neurologischen Institut der Universität Wien. Second edition. Paper. Price, 18 marks. Pp. 202, with 72 illustrations. Berlin: Julius Springer, 1927.

This is a short but excellent monograph on a subject of fundamental importance both in physiology and in medicine. There are five chapters: a short one on the historical development of our conception of tonus; a chapter on the energetics of tonus in muscle; a chapter on the methods of measuring tonus, in which the author describes, among other things, a method introduced by himself; a long chapter on the reflex of central nervous factors in tonus, and a final chapter on the question of sympathetic and parasympathetic nervous system relations to the tonus mechanism. The presentations of the data are generally lucid, critical and sound; but some of the important recent publications seem to have escaped the author's notice; for example, the paper by Dr. Tower on the question of sympathetic nervous relation to skeletal muscle tonus.

PLASTIC SURGERY OF THE ORBIT. By J. Eastman Sheehan, Professor of Plastic Surgery, New York Post-Graduate Medical School and Hospital. With a preface by Pierre Sebileau, professeur de la Faculté de médecine de Paris. Cloth. Price, $12. Pp. 348, with illustrations New York: Macmillan Company, 1927.

This is one of the best books on plastic surgery that have yet appeared. It starts with a two and a half page preface by Pierre Sebileau of the University of Paris that is a graceful gesture. Part I, thirty-eight pages, is given over to a careful surgico-anatomic description of the orbital cavity and its neighboring parts. Part II, fifty pages, deals with the preparation and after-care of skin grafts and general considerations. It is excellently written, full of general and surgical common sense, and evidently based on a wide experience. Part III, 205 pages, has to do with operative procedures. Not only are textbook conditions considered, but also the anomalous scars and defects that the average ophthalmic surgeon sees but seldom. At times the written text is somewhat vague. However, the continuity is carried by the illustrations, which are uniformly good, so that no doubt as to detail is left in the reader's mind. As an appendix, there is a chapter on anesthesia in facial plastic surgery by I. W. Magill of London. This is in keeping with the the high character of the book. The bibliography is scanty, and at times priority of procedure may be questioned. But these are such minor points that they are completely lost sight of in the general excellence of the work.

A DICTIONARY OF MODERN ENGLISH USAGE. By H. W. Fowler. Cloth. Price, $7.50 the set (with the "Concise Oxford Dictionary of Current English"). Pp. 742. New York: Oxford University Press, 1927.

THE CONCISE OXFORD DICTIONARY OF CURRENT ENGLISH. By H. W. Fowler, and F. G. Fowler. Cloth. Price, $7.50 the set (with a "Dictionary of Modern English Usage"). Pp. 1064. New York: Oxford University Press, 1927.

For any one who wishes to write literate English the two volumes here reviewed are exceedingly helpful. Whereas the dictionary may not be especially readable, the volume on modern English usage is a thing of joy forever. It is full of humor, satire and remarkable examples. The philosophy that permeates the author's discussions indicates a highly creditable attitude toward life in general. Such sections of the book as cast-iron idiom, curtailed words, the discussion of "that and which," of Latin plurals and of novelese are striking. The physician to whom writing is more than a system of personal publicity will find these two volumes the most valuable that he can add to his library.

THE STANDARDIZATION OF ERROR. By Vilhjalmur Stefansson, M.A., LL.D. Cloth. Price, $1. Pp. 83. New York: W. W. Norton & Company, Inc., 1927.

One of our most noted arctic explorers here indulges in some philosophical comments on knowledge, and makes his consideration fascinating. He is concerned largely with the tendency of human beings to accept superstitions as fact. For instance, he says "What's the good of an Englishman's learning, first, that all Americans speak through their noses and, secondly, why they do so, when he has to find out eventually that they do not?" Mr. Stefansson feels that we must have knowledge that cannot be contradicted. His analysis of the kindly frauds of that movie of Eskimo land, Nanook, is one of the most uproarious farces that has marked modern literature. His conclusion is that truth is good in every field of science, that it is as good as it is bad in subjects standing between science and religion, and that it is generally to be avoided when it conflicts with religion.

DEUTSCHE FRAUENHEILKUNDE. Geburtshilfe, Gynäkologie und Nachbargebiete in Einzeldarstellungen. Herausgegeben von Rud. Th. von Jaschke. Band III. Physiologie, Pflege und Ernährung des Neugeborenen einschliesslich der Ernährungsstörungen der Brustkinder in der Neugeburtszeit. Von Dr. Rud. Th. von Jaschke, o. ö. Professor der Geburtshilfe und Gynäkologie in Giessen. Second edition. Paper. Price, 39 marks. Pp. 522, with 119 illustrations. Munich: J. F. Bergmann, 1927.

As a pediatrician von Jaschke must be a consummate gynecologist. How daring the obstetrician who contributes a comprehensive monograph on the new-born! If the study of the new-born is an avocation with the author, he must address himself to his major interest with frenzied zeal. Here is a masterly monograph prepared with detailed thoroughness and enriched by painstaking photographs, diagrams and charts. Such a product of the obstetric services in American institutions would justifiedly endanger the back to the pediatrician movement, which aims to deliver the new-born into the figurative arms of the expectant pediatrician. Von Jaschke discusses the physiology, care and feeding of the new-born, the premature and debilitated infant, and nutritional disturbances of the breast-fed from the Robin-Magitot folds and Bohn's nodes to the chemistry of "witch's milk." It is indicative of the minute detail of the work to mention that spinal fluid considerations happen to be omitted. It is hardly criticism to call attention to the absence of a description of the electrical breast pump in the section on breast pumps, which portrays with faithful display and diagrammatic pomp the hand and water varieties. However, the reader must remember that the author is an obstetrician, and not so long ago a stubborn continental pediatrician scoffed at electrical breast pumps in an institution devoted to the care of the new-born and their mothers.

Books Received

Books received are acknowledged in this column, and such acknowledgment must be regarded as a sufficient return for the courtesy of the sender. Selections will be made for more extensive review in the interests of our readers and as space permits. Books listed in this department are not available for lending. Any information concerning them will be supplied on request.

THE EVOLUTION OF MAN SCIENTIFICALLY DISPROVED IN 50 ARGUMENTS: Designed (1) as an up-to-date text book, and a companion to all other text-books on evolution; and (2) as an antidote to books in libraries teaching evolution, infidelity and atheism; and (3) as an aid to all students, parents, teachers, ministers, lawyers, doctors, and all other lovers of the truth. By Rev. William A. Williams, D.D. Cloth. Price, $1. Pp. 126. New Jersey: W. A. Williams, 1928.

What the Reverend Williams thinks is the truth.

HANDBOOK OF DISEASES OF THE NOSE, THROAT AND EAR FOR STUDENTS AND PRACTITIONERS. By W. S. Syme, M.D., F.R.S.E., Lecturer on Diseases of the Throat and Nose, Glasgow University. Second edition. Cloth. Price, $5. Pp. 400, with illustrations. New York: William Wood & Company, 1927.

Popular lectures reprinted in a small book.

KURZE GESCHICHTE DER CHIRURGIE. Von W. von Brunn, Professor für Geschichte der Medizin an der Universität Rostock. Paper. Price, 24 marks. Pp. 339, with 317 illustrations. Berlin: Julius Springer, 1928.

Beautifully illustrated volume with sound background, written in easily readable German.

ANIMAL BIOLOGY. By J. B. S. Haldane, and Julian Huxley. Cloth. Price, $2.50. Pp. 344, with 122 illustrations. New York: Oxford University Press, 1927.

Sound textbook for intermediate work in biology.

CUESTIONES ACTUALES EN EL TRATAMIENTO DE LA SIFILIS. (Traducida del catalán por el autor). Por Antonio Peyri. Paper. Price, 4 ptas. Pp. 161. Barcelona: Arnau de Vilanova, 1927.

Popular handbook of information on syphilis.

THE PORTRAIT INVISIBLE. By Joseph Gollomb. Cloth. Price, $2. Pp. 310. New York: Macmillan Company, 1928.

A new type of detective story with a peculiar psychoanalytic character called the goldfish.

THE OXYGEN DEMAND OF POLLUTED WATERS. I. Bibliographical. A Critical Review. II. Experimental. The Rate of Deoxygenation. By Chemist Emery J. Theriault, United States Public Health Service. Treasury Department—United States Public Health Service. Public Health Bulletin No. 173. Prepared by direction of the Surgeon General. Paper. Price, 25 cents. Pp. 185. Washington: Government Printing Office, 1927.

A DESCRIPTION OF LEPROSY: Its Etiology, Pathology, Diagnosis and Treatment. By H. W. Wade, M.D., Chief Pathologist of Culion Leper Colony, and J. N. Rodriguez, M.D. For Health Officers and Others Concerned in Antileprosy Work. Prepared under the auspices of the Culion Medical Board, Philippine Health Service. Paper. Pp. 93, with illustrations. Manila: Bureau of Printing, 1927.

LAS SECRECIONES INTERNAS DE LAS GLÁNDULAS SEXUALES. El problema de la glándula de la pubertad. Por Alexander Lipschütz, professor de fisiologia y director del instituto de fisiologia de la Universidad de Concepción (Chile). Un prefacio por F. H. A. Marshall, F.R.S. Translated by F. Martinez Nevot. Second edition. Cloth. Pp. 492, with 140 illustrations. Madrid: Javier Morata, 1928.

BETTER DOCTORING, LESS DEPENDENCY. A Study of the Relations Between Medical and Non-Medical Agencies, with Special Reference to Clinic and Family Service. By Louise Stevens Bryant, Ph.D. With an introduction by John A. Lapp, LL.D. Paper. Pp. 90, with illustrations. New York: Committee on Dispensary Development of the United Hospital Fund of N. Y., 1927.

BIRTH, STILLBIRTH, AND INFANT MORTALITY STATISTICS FOR THE BIRTH REGISTRATION AREA OF THE UNITED STATES, 1925. Eleventh Annual Report. Part 1. Summary and Rate Tables and General Tables. Department of Commerce—Bureau of the Census. Herbert Hoover, Secretary. Paper. Price, 60 cents. Pp. 245. Washington: Government Printing Office, 1927.

PRIMARY STUDIES FOR NURSES. A Text-Book for First Year Pupil Nurses Containing Courses of Studies in Anatomy, Physiology, Chemistry, Hygiene, Bacteriology, Therapeutics and Materia Medica, Dietetics and Invalid Cookery. By Charlotte A. Aikens. Sixth edition. Cloth. Price, $3.25. Pp. 572, with 142 illustrations. Philadelphia: W. B. Saunders Company, 1927.

ANNUAL SURVEY OF AMERICAN CHEMISTRY. Volume II. July 1, 1926, to July 1, 1927. Edited by Clarence J. West, Director, Research Information Service National Research Council under the Auspices of the Division of Chemistry and Chemical Technology, William J. Hale, Chairman. Cloth. Price, $3 net. Pp. 415. New York: Chemical Catalog Company, Inc., 1927.

ADRESSBUCH DER MEDIZINISCH-TECHNISCHEN INDUSTRIE. Herausgegeben unter Mitwirkung der Fachverbände in der medizinisch technischen Industrie. Second edition of "Hand- und Spezial-Adressbuches für Industrie und Vertrieb ärztlicher Bedarfs-Artikel." Paper. Price, 6 marks. Pp. 105. Leipsic: Johann Ambrosius Barth, 1928.

VORLESUNGEN ÜBER DAS ZENTRALNERVENSYSTEM DER WIRBELTIERE. Eine Einführung in die Gehirnanatomie auf vergleichender Grundlage. Von Hartwig Kuhlenbeck, Dr. med. et phil., Assistent am anatomischen Institut der Universität Breslau. Paper. Price, 18 marks. Pp. 354, with 237 illustrations. Jena: Gustav Fischer, 1927.

EDMUND LESSER'S LEHRBUCH DER HAUT- UND GESCHLECHTSKRANKHEITEN. Band II. Geschlechtskrankheiten. Von J. Jadassohn, Geh. Medizinalrat, o. Professor und Direktor der Universitäts-Hautklinik in Breslau. Fourteenth edition. Cloth. Price, 26 marks. Pp. 467, with 95 illustrations. Berlin: Julius Springer, 1927.

EXPOSURES OF LONG BONES AND OTHER SURGICAL METHODS. By Arnold K. Henry, M.B., B.Ch., F.R.C.S.I., Professor of Clinical Surgery, Royal School of Medicine, Cairo. Foreword by Sir W. I. de C. Wheeler. Cloth. Price, $3.50. Pp. 80, with 51 illustrations. New York: William Wood & Company, 1927.

LEHRBUCH DER KLINISCHEN UNTERSUCHUNGSMETHODEN FÜR STUDIERENDE UND PRAKTISCHE ÄRZTE. Band I. Hälfte 1. Von Prof. Dr. H. Sahli, Direktor der medizinischen Universitätsklinik in Bern. Seventh edition. Paper. Price, 26 marks. Pp. 496, with 298 illustrations. Leipsic: Franz Deuticke, 1928.

MEMOIRS OF THE DEPARTMENT OF AGRICULTURE IN INDIA. Studies in Bovine Lymphangitis. By Krishnamurti Ayyar, I.V.S., Professor of Pathology and Bacteriology, Madras Veterinary College. Paper. Price, 2s. Pp. 127, with illustrations. Calcutta: Government of India Central Publication Branch, 1927.

PHYSICAL CHEMISTRY AND BIOPHYSICS FOR STUDENTS OF BIOLOGY AND MEDICINE. By Matthew Steel, Ph.D., Professor of Biological Chemistry, the Long Island College Hospital, Brooklyn, N. Y. Cloth. Price, $4 net. Pp. 372, with 38 illustrations. New York: John Wiley & Sons, Inc., 1928.

DIE PSYCHOLOGIE IN DER PSYCHIATRIE. Eine Einführung in die psychologischen Erkenntnisweisen innerhalb der Psychiatrie und ihre Stellung zur klinisch-pathologischen Forschung. Von Dr. Arthur Kronfeld. Paper. Price, 4.80 marks. Pp. 106. Berlin: Julius Springer, 1927.

USE AND TESTING OF SPHYGMOMANOMETERS. By J. L. Wilson, Assistant Physicist, H. N. Eaton, Engineer, and H. B. Henrickson, Assistant Physicist, Bureau of Standards. Paper. Price, 20 cents. Pp. 729-764, with illustrations. Washington: Government Printing Office, 1927.

ANNUAL REPORT OF THE SURGEON GENERAL, U. S. NAVY, CHIEF OF THE BUREAU OF MEDICINE AND SURGERY, TO THE SECRETARY OF THE NAVY FOR THE FISCAL YEAR 1927. Paper. Pp. 337. Washington: Government Printing Office, 1927.

TRANSACTIONS OF THE MEDICAL SOCIETY OF THE STATE OF NORTH CAROLINA. Seventy-Fourth Annual Session, April, 1927. Cloth. Pp. 576, with illustrations. Southern Pines, N. C.: North Carolina Tuberculosis Association, 1927.

ADMINISTRATION REPORT OF THE DIRECTOR OF MEDICAL AND SANITARY SERVICES FOR 1926. Part IV. Education, Science and Art (C). Paper. Price, Re. 1.75. Pp. 73. Colombo: H. Ross Cottle, Government Printer, 1927.

LABORATORY MANUAL OF COLLOID CHEMISTRY. By Harry N. Holmes, Professor of Chemistry in Oberlin College. Second edition. Cloth. Price, $3 net. Pp. 228, with 70 illustrations. New York: John Wiley & Sons, Inc., 1928.

A TEXTBOOK OF BACTERIOLOGY AND ITS APPLICATIONS. By Curtis M. Hilliard, Professor of Biology and Health, Simmons College. Cloth. Price, $2.80. Pp. 329, with 59 illustrations. Boston: Ginn & Company, 1928.

TÉCNICA QUIRÚRGICA VAGINAL. Por Luis Recasens Serrano, catedrático de obstetrica y ginecologia por oposición, en la Universidad de Zaragoza. Cloth. Pp. 227, with 163 illustrations. Madrid: Javier Morata, 1928.

MAY DAY—CHILD HEALTH DAY, 1927. This account was prepared from reports submitted by State May Day Chairmen. Paper. Price, 10 cents. Pp. 114. New York: American Child Health Association, 1927.

PROCEEDINGS OF THE MEDICAL ASSOCIATION OF THE ISTHMIAN CANAL ZONE, 1921-1926. Vol. XIV. Paper. Pp. 133, with illustrations. Mount Hope, C. Z.: Panama Canal Press, 1927.

ANNUAL REPORT OF THE DIRECTOR UNITED STATES VETERANS' BUREAU FOR THE FISCAL YEAR ENDED JUNE 30, 1927. Paper. Pp. 160. Washington: Government Printing Office, 1927.

HANDBUCH DER LICHTTHERAPIE. Herausgegeben von W. Hausmann, und R. Volk. Paper. Price, 36 marks. Pp. 444, with 142 illustrations. Vienna: Julius Springer, 1927.

METHODS AND PROBLEMS OF MEDICAL EDUCATION (Eighth Series). Paper. Gratis. Pp. 372, with illustrations. New York: Rockefeller Foundation, 1927.

PROCEEDINGS OF THE TWENTY-FIRST ANNUAL CONVENTION OF THE ASSOCIATION OF LIFE INSURANCE PRESIDENTS. Paper. Pp. 288. New York, 1927.

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Medicolegal

Awards for Injuries No Defense for Malpractice

(Hoehn v. Schenck (N. Y.), 223 N. Y. Supp. 418)

The Supreme Court of New York, appellate division, second department, says that as a separate defense to this action against a physician for alleged malpractice it was alleged that the plaintiff's fractured foot, suffered by him in the course of his employment, was compensated for by an award made by the state industrial commission, inclusive of the "consequential result of such injury." In reply, the plaintiff denied that he was compensated by the commission for "the consequential result of such injury"; i. e. for such results as were occasioned by the defendant's wrongful act.

The court at special term dismissed the complaint on authority of *White* v. *Matthews* (special term, supreme court, New York County) 223 N. Y. Supp. 415. That case followed *Pitkin* v. *Chapman* (supreme court, special term, Warren County) 200 N. Y. Supp. 235. In the White case the plaintiff moved to strike out the defense of the defendant physician, which interposed the same claim as was presented in the case now under review. In the Pitkin case the motion was made by the physician defendant for judgment on the pleadings. In the opinion of this court the basic error in the view expressed in the Pitkin case was the assumption that the employer and the physician were joint tort-feasors (wrongdoers), and that there was but "one wrong." The distinct liabilities were just as pronounced as though the plaintiff, whose left leg was injured in the course of his employment, shortly thereafter suffered an injury to his right leg, which a physician negligently and unskilfully treated. The fact that the maltreatment was to an already injured member was but a difference in degree, and not in the primary duty.

Nor does this court think that there was any act by the plaintiff in the instant case that would subject him to the charge of an election between inconsistent remedies in submitting his claim against his employer to the state industrial board under the workmen's compensation act. The basis of an estoppel by election of remedies rests for its application on the primary factor that the "same wrong" is involved. The "same wrong" is in no wise here involved. This court is not gainsaying the well settled proposition that, where one is injured by the negligence of another, he is not responsible for the mistaken advice of a competent physician, on which the injured person acts in good faith and with ordinary care, and that in such circumstances the negligent party is liable for all the consequences following the wrong. Here, however, two independent acts were presented. If this court assumes that one act was the employer's negligence, and of that there was nothing in the record, nor will it be presumed, in view of the fact that compensation is not based on negligence, but solely on the fact of employment, and indulges in the further assumption, as indeed this court must, on the motion made by the defendant, that he was guilty of malpractice, the two unrelated wrongs were independent in their results, and gave no basis for a claim of election when the plaintiff applied for and received compensation under the act. That these two alleged wrongs in no wise present inconsistent remedies, whereby an action for one of the wrongs is to be deemed an election barring the maintenance of an action on the other, seems to have been announced in *Radman* v. *Haberstro* (supreme court, general term, fifth department) 49 Hun, 605, 1 N. Y. S. 561, it being held that bringing an action against a physician for malpractice, through which it was alleged the plaintiff lost his hand, is not an election between inconsistent remedies, which will prevent an action against the party through whose negligence the plaintiff's hand was injured.

While it would be inequitable for the plaintiff to receive from the state industrial board, in addition to an award for injury arising out of and in the course of his employment, compensation for the result of the physician's alleged wrongful act, this court does not see how the defendant here could avail himself of that claim as a bar to the maintenance of the plaintiff's action. This overpayment, assuming it to have been made by the state industrial board or the insurance carrier, may give rise to a right either in the board or in the carrier to recover the excess in a court of equity, or it may be availed of by the defendant in mitigation of damages. Order dismissing the complaint reversed on the law, and motion made by the defendant for judgment on the pleadings denied.

Dying Declarations Not Admissible in Abortion Cases

(Winfrey v. State (Ark.), 296 S. W. R. 82)

The Supreme Court of Arkansas, in reversing a judgment of conviction of defendant Winfrey on a charge of abortion, says that the trial court permitted two witnesses to testify to statements made by the woman a short time before her death that the defendant had given her a certain drug for the purpose of causing her to abort, and that he had had intercourse with her some time in October, before her death in January, from which she became enceinte, on the theory that such statements were competent and admissible as dying declarations. The testimony of these two witnesses was objected to, and, on being overruled, proper exceptions were saved. The objection and exceptions were well taken, not because the woman was not in extremis, but because dying declarations are never admissible, except in homicide cases, when the circumstances of the death of the declarant and the guilt or innocence of the party charged are the subject of the inquiry. In several states the dying declarations of a woman whose death resulted from an abortion or an attempt to procure an abortion on her have been made admissible by statute, but no such change has been made in the Arkansas statute. In 1 R. C. L. p. 85, section 21, discussing the subject of dying declarations in abortion cases, it is said: "As a general rule, dying declarations of the woman are not admissible against the accused, where the prosecution is for the abortion, and not for the homicide of the woman." However, section 783 of Crawford & Moses' (Arkansas) Digest provides: "The mother shall be a competent witness in all cases of bastardy, unless she be legally incompetent in any case; and if she be dead at the time of the trial, her declarations, made in her travail and proved to be her dying declarations, shall be evidence."

Death from Pneumonia Following Heat Prostration

(King v. Buckeye Cotton Oil Co. (Tenn.), 296 S. W. R. 3)

The Supreme Court of Tennessee, in reversing a judgment which dismissed the plaintiff's petition to recover under the workmen's compensation act of that state for the death of her husband, says that the husband while employed as a fireman in the defendant's boiler room suffered what is usually termed heat prostration, two days after which pneumonia developed, the pneumonia causing his death two days later. This court found great conflict in the opinions of courts of other jurisdictions as to whether injury or death from heat prostration is within the application of the workmen's compensation statutes, the divergence of opinion on the question being largely controlled by differences in the language of the various statutes.

In the present case if the workman, overheated to a degree short of prostration or exhaustion, had stepped outside the boiler room, and, cooling off too quickly, had contracted a cold, resulting in pneumonia, no element of accident or injury by accident would have been present, and the cold and pneumonia, whether within the category of occupational diseases or not, would clearly not be an injury by accident or the result thereof. In such a case the overheated condition of the workman would be the natural result of the character of the work in which he was engaged. Or if a fireman, by reason of his daily exposure to the increased heat of a boiler room, should become gradually impaired in strength and in his powers of resistance, and should thereby become subject to a disease, his case would clearly be within the rule applied in *Meade-Fiber Corp.* v. *Starnes*, 147 Tenn. 362, 247 S. W. 989, wherein it was held that a disease resulting from the breathing of the dust necessarily caused by the very work in which the employee was engaged did not constitute an accidental injury.

This court does not think, however, that heat exhaustion or heat prostration can be said to be a necessary incident or an expected result of employment as a fireman in a boiler room. Whether the condition is caused solely and entirely by the excessive temperature of the room or place in which the employee is at work, or whether the excessive temperature of the place and the present physical condition of the workman combine to produce the result, there is an element of sudden, unforeseen and unexpected casualty and misfortune in the result. The fireman expected to become hot, but he did not expect to become overheated to the point of exhaustion or prostration. The difference may be one only of degree, but this court sees no reason why such a difference may not mark the boundary between the expected or anticipated and the unexpected or fortuitous.

This court does not find anything in the Tennessee statute or in the opinion of *Meade-Fiber Corp.* v. *Starnes* which would exclude from the application of the statute any "injury by accident," regardless of whether the injury is manifest by a condition of the body which medical science terms a disease condition rather than a traumatic condition. The exclusion is of any disease which does not amount to an "injury by accident," or which does not naturally result from such an injury. If the heat prostration suffered by the workman in the case at bar is to be classed as a disease, then it is assignable to the fact that at a particular identified time the workman, while in the course of his employment, became overheated, a condition unusual, unexpected and casual; and this court is of the opinion that the heat prostration amounted to an injury by accident, within the meaning of the compensation statute of the state.

It remained to be considered whether the pneumonia, which was the direct and efficient cause of the death of the workman, must be said to have "naturally resulted" from the injury, in view of the finding of fact that the heat prostration "was an exciting or contributing cause of the development of the pneumonia," and "was a contributing, moving or exciting cause." This court is of the opinion that whenever an injury by accident can be said to have been the moving, exciting or contributing cause of a resulting disease, such disease must be said to have "naturally resulted" from the injury, and it is wholly immaterial whether such disease often or usually results from similar injuries. It is sufficient in a particular case if a requisite causal connection is established between the injury and the disease.

Treatment of Slight Hernia—Use of Best Judgment

(Bailey v. St. Louis-San Francisco Ry. Co. (Mo.), 296 S. W. R. 477)

The Springfield (Mo.) Court of Appeals, in reversing a judgment for damages which was rendered for the plaintiff, says that certain medical testimony went no further at the most than to tend to establish the fact that the plaintiff might have been afflicted with a slight hernia at the time he entered the hospital in which he alleged that he was entitled to hospital service at the hands of the defendant. The physicians who testified were practically agreed that the best treatment for a slight hernia is, first, rest and observation for a period of time sufficient to determine whether a cure can be effected without an operation, and, if not, then an operation should be performed, or the patient advised to wear a truss. The position of the plaintiff was that the surgeons at the hospital should have performed an operation on him, or, if that was not thought to be necessary, he should have been retained in the hospital a much longer period to see if his injury would heal without an operation.

Physicians and surgeons must be allowed a wide range in the exercise of their judgment and discretion. The science of medicine is not an exact science. In many instances there can be no fixed rule by which to determine the duty of a physician, but he must often use his own best judgment and act accordingly. By reason of that fact the law will not hold a physician guilty of negligence as long as he uses his best judgment, even though his judgment may prove erroneous in a given case, unless it be shown that the course pursued was clearly against the course recognized as correct by the profession generally. As long as there is room for an honest difference of opinion among competent physicians, a physician who uses his own best judgment cannot be convicted of negligence, even though it may afterward develop that he was mistaken.

Under the rule just stated, the plaintiff in this case failed to make a case against the defendant for the failure of the surgeons of the hospital to operate on him, and the question of liability based on that charge of negligence should not have been submitted to the jury. If there was any ground of recovery in this case, it must be based on the fact of a too early discharge of the plaintiff from the hospital, whereas the petition did not state that ground of negligence as clearly as it should, if it was to be relied on. If that ground of negligence was to be an issue on another trial, the petition should be amended to charge it directly and the proof should establish it.

Damages Not Considered Excessive for Loss of Eye

(Szasz v. Joyland Co. (Calif.), 257 Pac. R. 871)

The District Court of Appeal of California, third district, in affirming a judgment for $20,000 damages in favor of the plaintiff, says that he, while watching a man shooting at a shooting gallery in the defendant's amusement park, was hit in the eye by a fragment of a 0.22 soft-lead bullet. It was found impossible to remove this foreign substance and the eyeball had to be removed to save the other eye. In view of the pain and suffering caused by the injury and the mortification and humiliation which would naturally be suffered in the future, in addition to which the plaintiff would be seriously handicapped through life by the loss of his eye, the court does not think that the verdict was excessive in amount and holds that it could not be disturbed.

Compensation Allowed for Fatal Injury to Epileptic

(Cusick's Case (Mass.), 157 N. E. R. 596)

The Supreme Judicial Court of Massachusetts, in affirming a decree awarding compensation to a sister for the death of her brother, says that it was agreed that the latter was employed by the town of Brookline, and that the town had accepted the workmen's compensation act. The employee was found unconscious at the foot of a flight of stairs in the town stable belonging to the employer, and died from a fracture of the skull resulting from the fall. The medical examiner testified that the employee was subject to attacks of epilepsy; that he "started in to work, and in going down the stairs had an attack, and fell." If the employee were not subject to an attack of epilepsy, and fell on the stairs while occupied in the course of his employment, his dependents could recover compensation under the statute. The fact he suffered from epilepsy did not bar a recovery. The protection of the statute is not limited to employees who are in good health. It includes all employees mentioned in the statute who are in the service of the employer under a "contract of hire." An employee cannot recover under the statute unless the injury is received while he is engaged in the course of his employment and the injury arises out of or is caused by the employment. But if, while doing the work for which he is hired, he suffers an injury that may be attributed to his employment and not solely to some disease or physical weakness not caused by the employment, he may recover. It might well have been found that this employee's death resulted not from epilepsy but because of the fracture of his skull. The circumstance that the epilepsy contributed in part to the fall did not prevent a finding of a causal connection of the employment with the injury.

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Society Proceedings

COMING MEETINGS

American Association of Anatomists, Ann Arbor, April 5-7. Dr. Lewis H. Weed, Johns Hopkins Medical School, Baltimore, Secretary.

American College of Physicians, New Orleans, March 5-9. Mr. E. R. Loveland, The Covington, 37th and Chestnut Streets, Philadelphia, Sec'y.

Louisiana State Medical Society, Baton Rouge, April 10-12. Dr. P. T. Talbot, 1551 Canal Street, New Orleans, Secretary.

Tennessee State Medical Association, Nashville, April 10-12. Dr. H. H. Shoulders, Lambuth Building, Nashville, Secretary.

Current Medical Literature

AMERICAN

The Association library lends periodicals to Fellows of the Association and to individual subscribers to THE JOURNAL in America for a period of three days. No foreign journals are available prior to 1921, nor domestic prior to 1923. Periodicals published by the American Medical Association are not available for lending, but may be supplied on order. Requests should be accompanied by stamps to cover postage (6 cents if one and 12 cents if two periodicals are requested).

Titles marked with an asterisk (*) are abstracted below.

American J. Diseases of Children, Chicago

35: 1-170 (Jan.) 1928

*Cardiac Failure in Children Under Five: Acute Rheumatic Myocarditis. P. E. Rothman and B. W. Leonard, Baltimore.—p. 1.
*Effect of Ultraviolet Rays on Blood of New-Born Infants: II. Erythrocytes and Hemoglobin. H. N. Sanford, Chicago.—p. 9.
*Scarlet Fever Antitoxin: Report of 465 Cases. R. C. Eley, New York.—p. 14.
Surface Tension of Blood Plasma in Children: Variations in Disease, and Relation to Time Drop, Sedimentation Rate and Viscosity. E. B. Clark, San Francisco.—p. 18.
*Analysis of Anorexia. W. M. Bartlett, Morristown, N. J.—p. 26.
*New Test for Hearing in New-Born: Conditioned Reflex. C. A. Aldrich, Winnetka, Ill.—p. 36.
Effect on Urine of Addition of Acids and Alkalis to Diet of Infants. D. Greene, New York.—p. 38.
*Congenital Syphilis: Treatment by Intraperitoneal Injection of Neoarsphenamine. C. G. Grulee, H. N. Sanford and P. C. Waldo, Chicago.—p. 47.
Respiratory Metabolism in Infancy and in Childhood: VII. Elimination of Water Through Skin and Respiratory Passages of Infants. S. Z. Levine and J. R. Wilson, New York.—p. 54.
*Acute Intussusception: Manipulative Reduction Under Fluoroscopic Control. V. R. Stephens, Berwyn, Ill.—p. 61.
*Acute Osteomyelitis of Superior Maxilla in Young Infants. M. H. Bass, New York.—p. 65.
Dermatomyositis: Case with Necropsy. C. Moore and L. A. Koch, Omaha.—p. 71.
Myatonia Congenita of Oppenheim. J. M. Nielsen, Battle Creek, Mich.—p. 82.
Amaurotic Family Idiocy (Tay-Sachs Type): Case with Protracted Course. G. B. Hassin and A. H. Parmelee, Chicago.—p. 87.
*Breast and Bottle Shy Infant: Nursing Only When Asleep. G. J. Feldstein, Pittsburgh.—p. 103.
Case of Congenital Occlusion of Duodenum by Complete Diaphragm. J. A. Garvin, Cleveland.—p. 109.
Physical Problems of Abnormal Behavior. I. S. Wile, New York.—p. 113.
Soranus of Ephesus. J. Ruhräh, Baltimore.—p. 120.

Effect of Digitalis in Heart Failure in Children.—Rothman and Leonard report on the effect of digitalis in two cases of heart failure in infants. The histories of both children were almost identical. One was 14 months of age and the other 16 months. There was no evidence pointing to either a rheumatic or diphtheritic etiology. Their illnesses were of short duration, and on admission they were suffering from myocardial decompensation. Their hearts were tremendously enlarged, and the roentgenograms were similar to those in cases of idiopathic hypertrophy of the heart. Digitalis was administered, and was followed by prompt improvement. Although the etiology of the myocardial failure is still a matter for speculation, the response to digitalis was sufficiently conclusive to warrant the use of the drug in similar cases.

Effect of Ultraviolet Rays on Blood of New-Born.—This study is based on observations in a series of 200 new-born infants, during a period of eight months. The erythrocyte count and hemoglobin determinations were made within six hours after birth, and at twenty-four hour intervals thereafter. The determinations were made at the same time every day. Treatments with the ultraviolet ray were begun on alternate infants on the second day, and continued thereafter at the same time on each of the following four days. A large number of infants did not show any change, and a considerable number showed a definite decrease in the number of blood cells and the hemoglobin content. Sanford obtained the most spectacular results in those patients who had a low hemoglobin content and a comparatively low cell count. The results would indicate a stimulation of the hematopoietic organs.

Use of Antitoxin in Scarlet Fever.—In a study of 215 cases of this disease, Eley found antitoxin of definite value. All patients, however, should not receive this treatment. The mild and the moderately sick patients do not receive enough benefit to warrant the treatment with antitoxin. Not only does the antitoxin cause the temperature to fall to 100 F. or below within from twenty-four to forty-eight hours, but the entire clinical picture is changed. The rash fades more rapidly, the subjective symptoms disappear, and the patient feels improved. In those cases in which the patients do not show an improvement after forty-eight hours, a second dose of antitoxin should be given. Extremely ill and toxic patients should be given the antitoxin either intravenously or intravenously and intramuscularly combined. Scarlet fever antitoxin decreases the number of complications. The exact dosage to be given cannot be stated in a categoric manner, as the severity of the case, and the age and the size of the patient must be considered. The sooner antitoxin is used, the more immediate will be the results.

Anorexia.—The most common pathologic conditions which Bartlett finds associated with chronic anorexia are septic tonsils and adenoids. The most efficient and reliable method of treatment is the introduction of fresh calf's liver, broiled beefsteak and lamb's kidneys into the diet of the child. The feeding of liver may be a specific stimulant to the appetite.

Test for Hearing in New-Born.—The hearing test devised by Aldrich consists in establishing a conditioned reflex with sound as one stimulus and pain as the other. At half hour intervals a small dinner bell is rung beside the baby's crib in such a way that the bell can be seen, while at the same time the sole of the right foot is firmly scratched with a pin. When these stimuli are applied, the child cries out lustily and draws up the right leg. After perhaps twelve or fifteen applications, the infant cries and draws up the leg when the bell is rung and the foot is not touched.

Treatment of Congenital Syphilis.—In twenty-five cases reported by Grulee et al., the method of administration consisted of a sterile preparation of the abdomen similar to that used in giving any other intraperitoneal injection. The ideal site for entrance of the needle is located in the middle of the sheath of the left rectus, slightly below the level of the umbilicus. This spot was chosen because experiments on animals showed that it is necessary to go below any possible limit of the omentum. A site too far below the umbilicus will endanger the bladder. The needle, preferably of small gage (18 gage), is inserted as for an ordinary intraperitoneal injection. The solution consists of 150 mg. of neoarsphenamine dissolved in 15 cc. of warm, sterile water. The child of average weight, 10 pounds (4.5 Kg.), should receive 50 mg., or 5 cc., of the solution. The needle must be pushed well through the peritoneum and into the peritoneal cavity. The substance is then injected as fast as the plunger will fall in the syringe, and sprayed over the peritoneal contents. Sixteen patients were clinically cured; four showed distinct clinical improvement, but were removed from the hospital by their parents before treatment could be concluded. Three children died during treatment; only one of these deaths could be attributed to the form of treatment. Two patients were given single injections of neoarsphenamine for diagnostic purposes. Intraperitoneal injection of arsphenamine is indicated in the treatment of children who have congenital syphilis; rapidity of action is desired, and the small veins make intravenous injection impossible.

Reduction of Acute Intussusception by Manipulation.—Stephens advocates reduction of the intussusception by a barium enema and manipulation. Visual control of the amount of enema admitted into the bowel is obtained, and dangerous distention can be avoided. Finally, there need be no doubt about the completeness of the reduction in most cases.

Acute Osteomyelitis of Superior Maxilla.—Bass describes a condition characterized by a definite clinical syndrome. A newly born or a young infant suddenly becomes ill with fever and prostration and shows a swelling and redness about the tissues of one eye; this is followed or is accompanied by a purulent unilateral nasal discharge, by swelling and softening of the alveolar border of the superior maxilla on the affected side and by pointing and the formation of abscesses on the hard palate, the alveolar border and often on the face between

the eye and the nose. Sequestrums and frequently small teeth are discharged from these sinuses. The treatment consists of keeping the fistula open and of removing sequestrums as they appear. If the process points on the face, a small incision may be made without fear of leaving a large permanent scar. As foci point on the palate and gum, they should be opened. The eye must be protected with compresses and frequently cleansed. Two cases are reported.

Breast and Bottle Shy Infant.—Feldstein's patient would nurse from the bottle in the dark only, and even then never unless it was given the bottle while asleep.

Archives of Dermatology and Syphilology, Chicago

17: 1-152 (Jan.) 1928

Dermo-Epidermic Interchanges as Controlled by Study of Melanic Pigment, Esters of Cholesterol (Xanthoma) and Hemosiderin (Schamberg's Disease). L. M. Pautrier, Strasbourg, France.—p. 1.

*Use of Gentian Violet Locally in Dermatologic Conditions. A. R. McFarland, Rochester, N. Y.—p. 16.

Eponyms of Dermatology: Second Series. H. Goodman, New York.—p.23.

Fungi and Fungous Diseases: Lecture II. A. Castellani, New Orleans. —p. 61.

Pemphigus Chronicus with Significant Antemortem and Postmortem Bacteriologic Observations: Case. E. L. McEwen, Chicago.—p. 98.

Use of Gentian Violet to Prevent Infection.—Some results are reported by McFarland concerning the clinical use of gentian violet locally in certain pyogenic infections of the skin and its use as a preventive of infection. Good results have been obtained in the treatment of infectious eczematoid dermatitis, certain cases of impetigo, folliculitis, furunculosis and one case of mycotic infection of the mouth. Gentian violet is useful in postoperative treatment when diathermy or fulguration have been employed. Negative results were obtained in the treatment of patients who had coccigenic sycosis barbae and epidermophytosis of the feet. The conspicuous color and tendency to staining are the chief drawbacks to the more frequent and extensive use of gentian violet.

Boston Medical and Surgical Journal

197: 1297-1340 (Jan. 12) 1928

*Intussusception. W. E. Hartshorn, New Haven, Conn.—p. 1297.

*Intracranial Hemorrhage in New-Born. T. C. Greene, Peking.—p. 1302.

*Exophthalmic Goiter: Symptoms. J. L. DeCourcy, Cincinnati.—p. 1305.

Some Newer Industrial Hazards. F. B. Flinn, New York.—p. 1309.

*Hernia in Employees of Grinding Wheel Factory. W. I. Clark, Worcester, Mass.—p. 1314.

Quantitative Study of Ultraviolet Transmitting Glasses. H. Goodman, New York, and W. T. Anderson, Jr., Newark, N. J.—p. 1316.

Instrument to Facilitate Operation for Tonsillectomy. L. Arkin, Boston. —p. 1318.

197: 1341-1384 (Jan. 19) 1928

Unrelieved After Surgical Operation. A. G. Rice, Springfield, Mass.—p. 1341.

Fundus Changes in Arteriosclerosis and Nephritis: Their Significance. W. B. Lancaster, Boston.—p. 1346.

Case of Pulmonary Mycosis. W. R. Stokes and S. McCleary, Baltimore. —p. 1350.

Structural Abnormalities of Foot: Treatment. P. N. Jepson, Boston.—p. 1353.

Information, Reference and Bibliographic Service. J. F. Ballard, Boston. —p. 1355.

Dr. Samuel H. Durgin: Health Pioneer. B. R. Richards, Albany, N. Y. —p. 1361.

Ruptured Pus Tube. F. J. Lynch, Boston.—p. 1362.

Auxiliary Ambulatory Device. P. N. Jepson, Boston.—p. 1364.

Intussusception.—Hartshorn says that the majority of cases of intussusception have as a background one of three things: 1. An unusually mobile cecum or ileum. This is common in infancy and is the reason more cases occur at this time than at any other. 2. A tumor of the ileum near the ileocecal valve. In case this is present and there is also a protrusion of the mucous membrane of the ileum through the valve, producing incompetence, an easy route is offered for the intussusceptum. It has been estimated that in the adult 35 per cent of the cases are caused by such tumors. 3. Some factor producing hyperperistalsis. This may be an obstructing band, a Meckel's diverticulitis, a typhoid or tuberculous ulcer, or any other inflammatory condition.

Intracranial Hemorrhage in New-Born.—Of 177 infants dying before or shortly after birth, Greene says fifty-five died from intracranial hemorrhage (many with tentorial tears). The type of delivery in these fifty-five cases was breech extraction (three of these preceded by version) in eighteen; high forceps, seven; midforceps, six; low forceps, four; cesarean section, three; normal labor—primiparous, seven; normal labor—multiparous, ten. The first thirty-five cases of intracranial hemorrhage in this series of fifty-five were studied in detail. In twenty-two cases of intracranial hemorrhage (from slight to severe in amount) there was no hemorrhage elsewhere in the body, although one child was definitely a "bleeder." In thirteen cases of intracranial hemorrhage (from slight to severe in amount), there was hemorrhage elsewhere in the body, especially in the suprarenals. These thirteen patients with hemorrhage, both intracranial and elsewhere, were further studied to see whether there was any relation between the severity of hemorrhage in the cranium and the severity of the hemorrhage elsewhere in the body. Of nine patients with slight visceral hemorrhage, five had extensive and four had slight cerebral hemorrhage. Of four with extensive visceral hemorrhage, three had extensive and one had slight cerebral hemorrhage. These figures do not show any tendency for slight cerebral hemorrhage to accompany slight visceral hemorrhage, but, as far as the figures go, a tendency is shown for extensive cerebral hemorrhage to accompany extensive visceral hemorrhage. Hemorrhagic disease is probably not the cause of intracranial hemorrhage, in general, but in certain cases it must be an important factor, as in one case cited. In this series of 177 autopsies, several cases were noticed in which newly born infants had intracranial hemorrhage, but apparently died from infections.

Exophthalmic Goiter.—DeCourcy asserts that most of the symptoms of exophthalmic goiter may be explained on the basis of an imbalanced sympathetic nervous system subjected to the action of some circulating sympathomimetic toxin. Exophthalmos and the other ocular symptoms are due to stimulation of the sympathetic fibers by which the orbitalis and müllerian muscles are innervated. Tachycardia results from stimulation of the cardio-accelerator centers in the cervical sympathetic ganglions. The increased basal metabolic rate seems to be due to two factors; namely, the increased aeration in the lungs resulting from dilatation of the bronchial tubes and the direct effect of the hormone of the thyroid gland. The tremor is produced by irritation of the sympathetic nerve fibers distributed to all voluntary muscles. The goiter itself arises from hyperplasia of the thyroid gland. However, there is no increase of colloid substance, iodine or thyroxin. The bruit over the gland results from the partial compression of the common carotid artery by the enlarged organ. With the single exception of increased basal metabolic rate, autonomic imbalance presents all the symptoms of exophthalmic goiter.

Hernia as Industrial Problem.—In an industry in which work is laborious, 6.75 per cent of the workers with weakness in the inguinal region developed hernia. Occupational hernia was proportionately more frequent among workers of southern European stock. Clark reports that operative repair cured approximately three fourths of those so treated. Over a period of several years, recurrence took place in approximately 25 per cent of those previously operated on.

Canadian Medical Association Journal, Montreal

17: 1415-1578 (Dec.) 1927

*Insulin and Mortality Rate from Diabetes Mellitus. I. M. Rabinovitch, Montreal.—p. 1415.

*Seasonal Variation of Antirachitic Effect of Sunshine. A. Brown and F. F. Tisdall, Toronto.—p. 1425.

Evolution of Clinical Pulmonary Tuberculosis: Early Diagnosis. F. M. Pottenger, Monrovia, Calif.—p. 1429.

*Maternal Mortality in Canada. H. MacMurchy, Ottawa, Ont.—p. 1434.

Examination of Nervous System: Interpretation of Findings. F. Brodie, Vancouver, B. C.—p. 1438.

Cardiospasm. C. Clark, Hamilton, Ont.—p. 1445.

Diazo Reaction in Uremic Serum and in Normal Urine. G. Hunter and R. C. Montgomery, Toronto.—p. 1448.

Duodenal Ulcer. C. S. McVicar, Rochester, Minn.—p. 1451.

Duodenal Diverticula. W. J. Cryderman, Toronto.—p. 1455.

Immediate and End-Results of Suprapubic Prostatectomy. V. C. Hunt, Rochester, Minn.—p. 1462.

Certain Difficulties and Emergencies of Obstetric Practice. W. P. Tew, London, Ont.—p. 1468.

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Abortion: Prophylaxis and Treatment. H. M. Little and E. Percival, Montreal.—p. 1473.
Certain Acute Pulmonary Complications of Puerperium: Lung Abscess. G. E. Learmonth, Calgary, Alta.—p. 1474.
Conservative Treatment for Chronic Endocervicitis. E. M. Blair, Vancouver, B. C.—p. 1480.
Pyelitis in Pregnancy. L. C. Conn, Edmonton, Alta.—p. 1484.
Study of 175 Cases of Epidemic Typhoid in Children in Montreal. S. J. Usher, Montreal.—p. 1486.
Hereditary Abnormalities of Eye: VII. M. T. Macklin, London, Ont. —p. 1493.
*Asthma and Eczema: Treatment. G. A. Campbell, Ottawa, Ont.—p. 1498.
Treatment of Goiter. C. C. Tatham, Edmonton, Alta.—p. 1503.
*Anemia as Predominating Symptom in Malignant Disease. E. Eisen, New York.—p. 1506.
Carbon Dioxide: Place in Anesthesia. R. M. Waters, Kansas City, Mo. —p. 1510.
Joint Tuberculosis. R. A. Hibbs, New York.—p. 1514.
New "Loop Tractor" for Use in Gastro-Intestinal Anastomosis. W. H. Lang, Vancouver, B. C.—p. 1516.
Open Beauty Pin in Esophagus of Six Weeks Old Infant. D. H. Ballon, Montreal.—p. 1517.
Denuded Surfaces Treated by Tannic Acid. A. B. Walter, Cambridge, N. B.—p. 1517.
Case of Idiopathic Dilatation of Esophagus or Cardiospasm. F. A. C. Scrimger, Montreal.—p. 1518.
Pyelitis in Ptotic Kidney, Associated with Focal Infection. J. W. Auld, Calgary, Alta.—p. 1520.

Insulin and Mortality Rate from Diabetes.—Rabinovitch contends that regardless of any disease found at the time of death, if all patients who received insulin and who actually required it are divided into groups of those who employ it properly and those who do not, it will be found that by far the great majority die, not in spite of the use of insulin, but because of the abuse of it. The advice which should be given patients is obvious.

Seasonal Variation of Antirachitic Effect of Sunshine.—Brown and Tisdall assert that from the first of March till the middle of October the antirachitic effect of the sun's rays is much greater than during the other months of the year, the most valuable period of the day being between 11 a. m. and 1 p. m., except during the extremely warm weather when the earlier hours of the day would be more suitable. Skyshine has approximately from 50 to 60 per cent of the value of sunshine. From October to March, the antirachitic effect of the sun is so slight that the benefit to be derived is purely problematic and has yet to be determined for the human being. The use of the special glasses is of value from March to June when the chemically active rays are very beneficial and the weather is too inclement for outside exposure. The sun's rays definitely aid in digestion.

Maternal Mortality in Canada.—The maternal mortality in Canada for one year is given by MacMurchy as being 6 per thousand living births, or 1,532 deaths. In 727 cases, the mother's health had not been good. In sixty-eight cases, the mother was very poor and destitute. In ninety-five cases, preexisting cardiac disease lessened the mother's chance of life; and in 190 cases, including fifty-nine of the above, cardiac disease was given as a cause of death. Ninety-six mothers had tuberculosis. In nineteen cases, previous pregnancies had been too frequent, and at too short intervals. Sepsis was the cause of death in 418 cases. Hemorrhage caused 357 deaths; toxemias of pregnancy caused 344 deaths; long and hard labor caused eighty-seven deaths. Pernicious vomiting was the cause of death in forty-seven cases; phlebitis was a cause in twenty-two cases; nephritis in eighty cases. Eclampsia was the cause of death in 195 cases. In eighty-seven cases it was stated that the labor was long and hard, leading to exhaustion and shock; in eighty-seven cases the cause of death was given as embolus; in sixty-three cases shock was given as the cause of death. Ectopic pregnancy occurred in thirty-three cases. Of the total number of pregnancies, 349 were in primiparas and 963 were in multiparas. In 110 cases the death of the patient occurred before labor. In fifty-seven cases the death occurred in labor. Forceps were used in 289 cases. Pituitary extract was used in 327 cases, and in three of these it is recorded that rupture of the uterus occurred. In 237 cases, a physician was not in attendance. This number includes forty-eight, in which a midwife, nearly always untrained, was in attendance, and in some of these forty-eight cases the midwife was directly responsible for the death. The absence of proper postpartum care, especially of skilled nursing, or even of household help, was mentioned in six cases as the cause of death. Of the 1,532 women who died, 230 had prenatal care and 1,302 had not. In 128 cases the physician was not called till labor had actually begun. In the 230 cases in which prenatal care was given, there were forty in which the mother was responsible for the failure of prenatal care.

Treatment of Asthma and Eczema.—Cases of eczema due to timber wolf, corn, silk, and orris root are reported by Campbell. Desensitization of children suffering from asthma caused by egg and horse dander is a practical and satisfactory method of treatment. Horse dander is probably the most important single cause of asthma in children, but cases due to glue, canary feathers, mustard, hog hair and flaxseed are reported. Asthma of bacterial or nonprotein origin is best treated by vaccine, but the results are not as spectacular as those seen in cases due to specific proteins. Cases of recurrent vomiting due to egg and milk are reported. Fatal cases from acidosis due to recurrent vomiting, which in turn is due to food hypersensitivity, are reported.

Anemia in Malignant Disease.—Some patients with cancer suffer more from the accompanying anemia than from any other symptom associated with malignant disease. Eisen reports three cases and says that such patients may sometimes receive considerable alleviation of their symptoms from measures tending to the relief of their anemia, particularly blood transfusion. The danger of hemolysis of the donor's blood should be kept in mind, and tests for this possibility should be made beforehand.

Journal of Bone and Joint Surgery, Boston

10: 1-185 (Jan.) 1928

Repair of Nerves and Tendons of Hand. S. Bunnell, San Francisco.—p. 1.
Disability and Cost of Industrial Fractures. R. N. Gray, San Fracisco. —p. 27.
Articular Mechanism of Diarthroses. T. Walmsley, Belfast, Ireland. —p. 40.
Second Type Arthritis as Exemplified in Shoulder Joint. A. L. Fisher, San Francisco.—p. 46.
Relation of Surgical Pathology of Right Lower Quadrant to Arthritis. R. Smith, Los Angeles.—p. 57.
Surgical Lesions of Right Lower Quadrant in Patients with Chronic Deforming Arthritis. R. G. Taylor, Los Angeles.—p. 62.
Early Motion in Treatment of Separation of Lower Femoral Epiphysis. A. S. Griswold, Bridgeport, Conn.—p. 75.
*Mechanical Action of Periosteum in Fresh Fractures. B. H. Moore, Chicago.—p. 78.
*Physiology of Muscle Innervation: Influence of Sympathetic System. E. G. Martin, Stanford University, Calif.—p. 82.
Easily Portable Convex Frame. P. C. Colonna, New York.—p. 88.
*Dislocation of Head of Radius: New Operative Procedure. H. Milch, New York.—p. 89.
Technic in Use of Bone Grafts in Cases of Nonunion. F. J. Cotton, Boston.—p. 94.
Rickets of Lower Extremities: Relation to Genu Valgum and Static Flat-Foot. C. U. Moore, Portland, Ore.—p. 96.
End-Results and Follow-Up in Orthopedic Surgery. W. A. Rogers, Boston.—p. 104.
*Fracture of Tarsal Scaphoid: Mechanism. E. P. Lehman and I. H. Eskeles, St. Louis.—p. 108.
*Continuous Traction in Treatment of Spinal Conditions, Notably Scoliosis. C. L. R. Lowman, Los Angeles.—p. 114.
*Late End-Results in Ununited Fracture of Neck of Femur Treated by Bone Peg or Reconstruction Operation. F. H. Albee, New York.—p. 124.

Action of Periosteum in Fresh Fracture.—Moore directs attention to the fact that in transverse fractures the elastic pull of the periosteum, as well as muscle pull, is a factor in producing angular and overriding deformity. It also tends to lock overriding fragments by its mechanical action under direct traction. Further, by its elastic action it tends to cause angular deformity, if reduction is not anatomically perfect. However, when anatomically perfect reduction is obtained, this elastic action of the periosteum tends to maintain it. Therefore, manipulation that will take advantage of these properties of the periosteum is advisable.

Physiology of Muscle Innervation.—Martin suggests that a muscle deprived of the opportunity to function actively through impairment of its upper neuron connections, yet continuing to receive "trophic" influences through the sympathetic system, might conceivably pass into a state leading to accentuation of its tonus, which is maintained by reflexes localized within itself. Ramisection, by removing the source

of constant "trophic" stimulation, might enable the muscle to recur to a metabolic state better adapted to its enforced quiescence, a state in which tonus ceases to be exaggerated.

Operation for Dislocation of Head of Radius.—In the operation suggested by Milch, an attempt is made to restore the function of the torn annular ligament. A fascial graft is cut in such fashion that while one part of it will function as a new orbicular ligament within which the head of the radius may freely rotate, the lateral extension will operate to provide a reenforcement to the injured external lateral ligament. By appropriate tightening of the fascial sling so formed, it is possible to keep the head of the radius in contact with its normal articulation in the lesser sigmoid cavity of the ulna.

Fracture of Tarsal Scaphoid.—A case is presented by Lehman and Eskeles of fracture of the tarsal scaphoid from indirect violence with excellent functional result. A study of the tarsus suggests that fracture of the scaphoid from indirect violence is not probable without ligamentous tear. A possible mechanism of fracture is presented as follows: (*a*) forced flexion of the foot, with resulting tear of the dorsal scaphoidocuneiform ligament; (*b*) transmission of force in the axis of the foot driving the scaphoid against the upturned sharp inferior proximal angle of the middle cuneiform.

Continuous Traction in Treatment of Scoliosis.—The treatment outlined by Lowman consists of a sequential use of recumbency, traction, casts, braces, exercises and operations in accordance with the severity, the cause and position of the curves and the constitutional condition of the patient.

Results of Operation for Ununited Fracture of Neck of Femur.—The end-results in 146 cases of ununited fracture of the neck of the femur are reviewed by Albee. Five patients were seen early, and were treated with the Whitman abduction spica with excellent result. The results in thirteen cases had to be eliminated because of incomplete records. In forty-two of the remaining 128 cases, the bone-peg operation was recommended; in fifty-three, the reconstruction operation. Six patients of the former group refused operation, and nine of the latter, leaving a total of eighty patients operated on (thirty-six bone-peg and forty-four reconstruction operations). In 90 per cent of the bone-peg operations, and in 75 per cent of the reconstruction operations, the results were excellent or good. The interval between the time of operation and that of the last examination varied from a few months to fifteen years. Function was usually good within six months after operation.

Kentucky Medical Journal, Bowling Green

25: 663-738 (Dec.) 1927

Public Health in Kentucky. D. Healey, Lexington.—p. 716.
Who Is Responsible for Increase of Idiocy? H. C. Clark, Falmouth.—p. 720.
Diverticula of Upper Esophagus. C. G. Lucas, Louisville.—p. 721.
Arteriosclerosis and High Blood Pressure. S. S. Amerson, Georgetown.—p. 725.

Medical Journal and Record, New York

127: 1-56 (Jan. 4) 1928

*Psychologic and Medicolegal Aspects of Pernicious Anemia. A. G. Hulett, East Orange, N. J.—p. 1.
Senescence and Senility. L. Williams, London.—p. 7.
Methods of Exploration in Cardiology: Diagnosis of Cardiopathies. S. D. Baldovin, New York.—p. 10.
*Case of Hemochromatosis. O. Hensel, New York.—p. 14.
National Traits in Medicine with Special Reference to Jew. H. A. Savitz, Providence, R. I.—p. 16.
Benacol in Treatment of Pruritus Ani. F. C. Yeomans, R. V. Gorsch and J. L. Mathesheimer, New York.—p. 19.
Uterine Cancer: Is Outlook Better for Patient? W. P. Healy, New York.—p. 21.
Effect of Prenatal Care on Size and Health of New Born. E. V. Davis, Chicago.—p. 24.
Pyelonephritis in Pregnancy. W. S. Pugh, New York.—p. 27.
*Relation of Obscure Abdominal Pain and Chronic Arthritis to Infection of Uterine Cervix. C. Mazer and M. Sabel, Philadelphia.—p. 30.
Sacral Backache Caused by Sclerosed Arteries Supplying Female Genital Organs. C. L. Larkin, Waterbury, Conn.—p. 33.
*Effect of Calcium on Fertility and Pregnancy. O. Loew, Munich, Germany.—p. 35.
Wonders of Obstetric Science, as Related by Simen Goulart. C. G. Cumston, Geneva, Switzerland.—p. 37.

Psychologic and Medicolegal Aspects of Pernicious Anemia.—Hulett is convinced that ample evidence is available from unquestionably competent observers to establish the premise that pernicious anemia has a great importance psychologically and medicolegally. Its importance as a frequent cause of mental disturbance cannot be overstressed. The alienist and the lawyer will do well to remember that a sufferer from pernicious anemia is presumably of unsound mind, particularly in the latter months of life, and that, though he may have achieved an apparent arrest of cure of the anemic process, this fact does not discharge his mentality from suspicion. Such a person may well prove not only untrustworthy in a responsible position of any sort, but may even develop suddenly into a menace to society, becoming the author of untold difficulty and misery through his irrational acts. There is really no limit to the possibilities presented by such a situation. A uniform practice of making the presence of pernicious anemia a prima facie cause for retirement and careful observation would obviate many present-day difficulties. As in more than one instance mentioned by Hulett, the question of the mental competence of any given person admittedly suffering from pernicious anemia, in connection with contractual obligations, a deed, or a testament, is of paramount importance.

Hemochromatosis.—A case of extreme hemochromatosis in an alcoholic subject, aged 34, is described by Hensel. The only history obtainable was that of a rather acute diabetes of five weeks' duration with acidosis. The case is of interest in that the patient is one of the youngest on record, and that extremely high figures were obtained for iron in the liver. No proof could be furnished that copper was the cause of the condition, except that the patient was definitely alcoholic. It is quite possible that other toxic agents besides copper (from cooking vessels, etc.) may lead to the extreme cirrhosis of the abdominal organs with the deposition of pigment which characterizes the disease.

Relation Between Chronic Arthritis and Infection of Cervix.—Mazer and Sabel recognize an etiologic relationship between infection of the uterine cervix and chronic arthritis. They advise the use of the electric cautery, well applied, to rid the uterine cervix of infection by destroying the entire gland-bearing mucosa.

Advantage of Combining Calcium Salts.—Loew states that combining calcium lactate with sodium lactate in the form of the double salt of calcium sodium lactate represents a means not only of administering calcium in a most convenient form but also of securing the important factor of calcium retention and calcium assimilation. The presence of sodium lactate exerts also a beneficial effect on the consistency of the feces, which assume often a high degree of compactness, when calcium lactate alone is administered.

Medicine, Baltimore

6: 419-550 (Dec.) 1927

Effects of Complete and of Partial Removal of Liver. F. C. Mann, Rochester, Minn.—p. 419.
Nonspecific Therapy. J. L. Miller, Chicago.—p. 513.

Military Surgeon, Washington, D. C.

62: 1-144 (Jan.) 1928

Women Nurses with Union Forces During Civil War. J. C. Stimson and E. C. S. Thompson.—p. 1.
Transmission of Surra Among Equines. R. A. Kelser.—p. 18.
Reducing Cost of Antimosquito Measures in Control of Malaria. G. C. Dunham.—p. 33.
Renal Glycosuria: Three Cases. S. U. Marietta.—p. 39.
Medical Service of Infantry Division Being Organized. W. N. Bispham.—p. 54.
Recurrence of Symptoms After Snake Bite. H. C. Yarrow.—p. 73.
Recollections of Some Old Army Medical Officers. R. S. Lamb.—p. 77.

Minnesota Medicine, St. Paul

11: 1-66 (Jan.) 1928

Reminiscences of Neurologist. C. E. Riggs, St. Paul.—p. 1.
Treatment of Acute Empyema. J. M. Hayes, Minneapolis.—p. 16.
Immobilization in Treatment of Pulmonary Tuberculosis. E. K. Geer, St. Paul.—p. 21.
Physiology of Liver and Gallbladder. F. C. Mann, Rochester.—p. 25.
Cholecystography. B. R. Kirklin, Rochester.—p. 28.

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Surgery of Gallbladder. A. Schwyzer, St. Paul.—p. 31.
Acute Silent Infection of Maxillary Sinus in Relation to Acute Systemic Diseases. C. A. McKinlay, Minneapolis.—p. 36.
Certain Aspects of Vertigo from Ophthalmologic Standpoint. C. L. Oppegaard, Crookston.—p. 39.
Hospital Obstetric Records Over Six Year Period. G. P. Dunne, St. Paul.—p. 43.

New Orleans Medical & Surgical Journal

80: 413-482 (Jan.) 1928

Malaria. L. S. Lippincott, Vicksburg, Miss.—p. 413.
Visceral Pain. T. B. Holloman, Itta Bena, Miss.—p. 416.
Double Empyema of Pleural Cavities. J. Q. Graves, Monroe, La.—p. 420.
Etiology of Measles. C. W. Duval, New Orleans.—p. 423.
Diagnosis of Acute Osteomyelitis. G. A. Caldwell, Shreveport, La.—p. 429.
Appendicitis Complicating Pregnancy. A. P. Heineck, Chicago.—p. 436.
Etiology of Pernicious Anemia. M. M. Wintrobe, New Orleans.—p. 446.
Chronic Pancreatitis: Cases. J. E. Knighton, Shreveport, La.—p. 454.
Removal of Bullet from Wall of Heart and Report of Stab Wound of Heart. C. W. Allen, New Orleans.—p. 458.

Occupational Therapy and Rehabilitation, Baltimore

6: 421-499 (Dec.) 1927

Occupational Therapy from Viewpoint of Superintendent of State Mental Hospital. C. F. Haviland, New York.—p. 431.
Development of Occupational Therapy in New York State Hospitals. H. M. Pollock, New York.—p. 439.
Block Printing. J. R. Bacon.—p. 445.
Cardboard Loom. L. J. Haas, New York.—p. 451.
Occupational Therapy and Hospital Industries. W. M. Kenna, Washington, D. C.—p. 453.
Industrial Life of Blind in Central Europe. D. R. Carmer, New York. —p. 463.

Philippine Islands M. Association Journal, Manila

7: 455-584 (Dec.) 1927

Progress of Sanitation in Philippines, Especially in Manila. E. Hernando, Manila.—p. 455.

Public Health Reports, Washington, D. C.

42: 3179-3226 (Dec. 30) 1927

Endemic Goiter Among School Children in Minnesota, Oregon, Colorado, Montana, Connecticut and Massachusetts, and in Cincinnati, Ohio. R. Olesen, Washington, D. C.—p. 3180.
Tadpole of Spadefoot Toad Enemy of Mosquito Larvae. M. A. Barber and C. H. King, Washington, D. C.—p. 3189.

Rhode Island Medical Journal, Providence

11: 1-16 (Jan.) 1928

Blood Pressure. W. E. Preble, Boston.—p. 1.
Dentistry as Medical Profession Sees It. E. S. Calder, Providence.—p. 4

South Carolina M. Association Journal, Greenville

23: 535-558 (Dec.) 1927

General Practitioner and Laboratory. W. G. Gamble, Jr., Charleston, S. C.—p. 538.
Uterine Hemorrhage. G. Thompson, Inman, S. C.—p. 541.
Study of 100 Deaths from Diphtheria in South Carolina During 1926 and 1927. J. A. Hayne, Columbia, S. C.—p. 543.
Cirrhoses of Liver. L. G. Rowntree, Rochester, Minn.—p. 549.

West Virginia Medical Journal, Charleston

24: 1-52 (Jan.) 1928

Cardiac Arrhythmias. V. E. Simpson, Louisville, Ky.—p. 1.
Treatment of Neurosyphilis. C. Pope, Louisville, Ky.—p. 15.
Bone Graft Surgery. J. O. Rankin, Wheeling.—p. 18.
Purulent Meningitides of Infancy. G. M. Lyon, Huntington.—p. 24.
Some of Calamities That May Follow Attempts at Interruption of Pregnancy. J. E. Cannaday, Charleston.—p. 30.
Operative Treatment of Hernia of Coal Miners with Living Sutures. E. B. Henson, Charleston.—p. 32.

Wisconsin Medical Journal, Milwaukee

27: 1-50 (Jan.) 1928

*Treatment of Burns by Tannic Acid. S. J. Seeger, Milwaukee.—p. 1.
Tuberculosis Claims Most Victims in Women: National Tendency. C. A. Harper, Madison.—p. 6.
Neurasthenia Concept. P. Bassoe, Chicago.—p. 11.
*Cardiolysis for Chronic Mediastinopericarditis: Three Cases. E. S. Smith, St. Louis.—p. 16.
Diagnostic Problems. L. M. Warfield, Milwaukee.—p. 21.
Gas Bacillus Infection: Case. A. S. White, Rice Lake.—p. 22.
Pyloric Stenosis: Unusual Case. R. M. Greenthal, Milwaukee.—p. 24.

Treatment of Burns by Tannic Acid.—Seeger relates his experience in the treatment of burns with tannic acid according to Davidson's method. The dressing is soaked with a 2.5 per cent aqueous solution of tannic acid, although solutions as dilute as 0.75 per cent and as concentrated as 5.0 per cent have been used in some cases described. It is essential that the tannic acid solution be made up fresh just before use, because it deteriorates on standing with the formation of the far less astringent gallic acid. For household use, it is easy to remember that four teaspoonfuls of dry tannic acid powder to one glass of water makes approximately a 2.5 per cent solution.

Cardiolysis.—Every case of disturbed compensation refractory to ordinary remedies, Smith says, should be considered as a potential case of chronic mediastinopericarditis. Every case of ascites not ascribable to the more common causes of this condition should be carefully studied from the standpoint of adherent pericardium. Fluoroscopy is a most valuable aid in the recognition of the condition, as is also the electrocardiogram. As soon as the diagnosis is established cardiolysis should be urged, as no medicinal treatment can afford results when a heart is embedded in the grip of extensive adhesions, while, on the other hand, the earlier the surgical procedure is resorted to, the better will be the response of the cardial musculature to the relief thereby afforded. Local block anesthesia should be the anesthetic of choice, as shock, cardiac and pulmonary complications are thereby minimized.

FOREIGN

An asterisk (*) before a title indicates that the article is abstracted below. Single case reports and trials of new drugs are usually omitted.

British Medical Journal, London

2: 1215-1250 (Dec. 31) 1927

Clinical Research by Family Doctor. A. M. Ramsay.—p. 1215.
Village Settlements for Consumptive. P. C. Varrier-Jones.—p. 1217.
*Infarction of Heart. R. O. Adamson.—p. 1219.
Epidemic Encephalitis Associated with Parkinsonism Treated by Ultraviolet Rays. H. N. Jaffé.—p. 1219.
*Disseminated Sclerosis: Rat as Possible Carrier of Infection. I. G. H. Wilson.—p. 1220.
*Method of Draining Septic Uterus. A. R. Hobbs.—p. 1223.
Congenital Dextrocardia Without Transposition of Other Viscera: Acquired Valvular Disease and Auricular Fibrillation. D. Krestin.—p. 1223.
Unusually Large Ovarian Cyst. H. H. Barnett.—p. 1225.
Traumatic Rupture of Duodenum and Liver: Subphrenic Abscess: Recovery. C. J. A. Woodside.—p. 1225.
Gangrenous Appendix in Strangulated Hernial Sac. A. Seaston.—p. 1225.
Congenital Diaphragmatic Hernia. D. H. Waldron.—p. 1226.
Chronic Vinegar Poisoning. D. A. Urquhart.—p. 1226.

Infarction of Heart.—Adamson thinks that this condition probably occurs more often than is realized. It may be concealed under the vague term of "heart failure" or "angina pectoris"; or, in total error, some entirely different condition may be supposed to be present. It is doubtless a common cause of sudden cardiac death; also, if uremia is excluded, of those fugitive attacks of pericarditis which occur in elderly persons who recover but, later on, die suddenly. Such attacks may only exhibit a friction sound for a few days. Recovery from definite cardiac infarction occurs after an illness of very definite kind with symptoms practically pathognomonic. It is caused by embolism of the right or left coronary arteries, but more often by thrombosis, the gradual increase of which may have given rise to symptoms of cardiac inefficiency. Infarction of the heart is always possible in the life history of those patients with high blood pressure, diminished cardiac reserve and arteriosclerosis, with its symptoms in the brain, lungs, stomach, kidneys or limbs (intermittent claudication). When cardiac infarction occurs in these persons, death either takes place at once or in a few hours, or a more or less typical illness is presented, followed by recovery, partial or complete.

Disseminated Sclerosis: Rat as Carrier.—The occupations of 688 persons dying of disseminated sclerosis in 1925 have been investigated by Wilson, and seventy-two patients have been interviewed with regard to their exposure to rat-infested water. The observations of other investigators as to heavy incidence in agricultural workers and wood workers have been confirmed. The incidence appears to be heavy also among painters, plumbers, molders and wool and cotton workers. Clinical histories show some evidence in favor of the possibility that the infection of disseminated sclerosis is spread by rats and water.

Draining Septic Uterus.—Hobbs injects pure glycerin into the uterus, slowly, through a rubber catheter. In from twenty minutes to half an hour, from 60 to 100 cc., or even more glycerin may be injected without causing the slightest discomfort to the patient. This may be done twice a day. In cases of chronic hemorrhage, as in chronic metritis and fibrosis uteri, patients are given an anesthetic and the uterus is washed out alternately with alcohol and glycerin. This is repeated for about a dozen times. Subsequently in all cases, the uterus is drained for the succeeding few days.

Heart, London

14: 111-176 (Dec. 21) 1927

Coronary Circulation in Relation to Cardiac Cycle. G. V. Anrep, E. W. H. Cruickshank, A. C. Downing and A. S. Rau.—p. 111.
Innervation of Mammalian Capillaries by Vasoconstrictor Sympathetic Nerves. K. E. Harris and H. M. Marvin.—p. 135.
*Vascular Reactions of Skin to Injury: X. Intervention of Chemical Stimulus Illustrated Especially by Flare: Response to Faradism. T. Lewis, R. T. Grant and H. M. Marvin.—p. 139.
*Histamine-Like Substance in Skin Extracts. K. E. Harris.—p. 161.

Vascular Reactions of Skin to Injury.—The conclusion that certain forms of physical stimuli provoke vascular reactions in the skin by releasing locally a chemical substance that acts directly on the vessels and nerve endings is reexamined by Lewis, Grant and Marvin and substantiated by new evidence. It is widened by applying it to a variety of stimuli, including especially the faradic current. The mechanism of the reflex flare following stimulation of the skin is further analyzed. It is shown that it may be provoked from the subcutaneous tissues. It is shown further that the sensory nerve paths, which ordinarily convey the reflex from skin area to skin area, take a subcutaneous and not a cutaneous course. Observations on itching of the skin, associated with the triple response (urticarial response) are included, and this itching is ascribed to stimulation of the sensory nerve endings by histamine or an equivalent substance. The sensory nerve endings that receive the stimulus responsible for the flare are known to be stimulated only by histamine introduced, or by its equivalent released from the tissues. It is suggested that the nerve endings in question are specifically adapted to this form of stimulus.

Histamine-Like Substance in Skin Extracts.—Harris states that alcoholic extracts of human skin contain a substance that flushes and wheals the human skin when punctured into it. The same extracts contain a depressor substance, and produce contraction of the guinea-pig's uterus; this depressor substance is not choline. From this evidence, and from previous work on the lung and liver, it is concluded that the alcoholic extracts of human skin contain histamine. Its amount in normal skin is estimated at about 10 mg. per kilogram of tissue (or 1 in 100,000), the quantity varying somewhat for different regions of the body.

Lancet, London

2: 1377-1426 (Dec. 31) 1927

Medical Education in Cork. C. Y. Pearson.—p. 1377.
*Two Cases of Trichinelliasis. T. L. Hardy.—p. 1380.
*Atrioventricular Rhythms. E. N. Chamberlain.—p. 1383.
*Dextrinuria: Clinical Significance. P. J. Cammidge.—p. 1386.
Aural Systemic Infection. R. D. Owen.—p. 1390.
Effect of Anesthetics on Blood Iodine. W. Anderson and I. Leitch.—p. 1391.
Concurrent Appendicitis and Meckel's Diverticulitis. A. Cumming.—p. 1392.
Case of Erection of Vermiform Appendix. S. A. Lane.—p. 1392.

Trichinelliasis.—Two sporadic cases of trichinelliasis are described by Hardy, of a type sufficiently definite to admit of ready clinical recognition, but not severe enough to be confounded with such conditions as enteric. Diagnosis was confirmed by finding the embryos in the blood stream and in the muscles. The source of the outbreak could not be traced, but its occurrence is to be attributed to the failure of the ordinary methods of cooking when dealing with large joints.

Atrioventricular Rhythms.—The close relationship of auriculoventricular rhythm and ventricular escape, Chamberlain thinks, justifies their inclusion under the common heading of atrioventricular rhythm. A case of auriculoventricular rhythm is described, illustrating its occurrence occasionally during sinu-auricular rhythm (ventricular escape), and the effect on it of atropine and digitalis in producing a continuous auriculoventricular rhythm of types II and III, respectively. A suggestion is made for the treatment of the attacks of vertigo which are liable to occur. Atropine would seem the rational drug to employ for the vertiginous attacks, as it increases the rate of the rhythm; it is probable that these attacks are due to excessive slowing of the heart, similar to that of heart block.

Dextrinuria.—It is generally agreed that, if diseases of the pancreas causing deficiency of the internal secretion of the gland could be detected and dealt with in a prediabetic stage, the prospect of a permanent cure would be considerably increased. Cammidge has found that dextrinuria invariably precedes the onset of glycosuria in such cases, often by months and sometimes by years, so that the discovery of its presence would seem to offer such an opportunity for commencing treatment before irreparable harm has been done. The early diagnosis of defects of carbohydrate metabolism due to relative deficiency of the internal secretion of the pancreas affords even better chances of instituting radical treatment than the discovery of an absolute deficiency, since persistent glycosuria devolops only when the pancreas is exhausted and an actual deficiency of its internal secretion occurs. Dextrinuria arising from disturbances in the functions of the liver may apparently exist for many years without any definite signs of a diabetic condition developing, although the not infrequent presence of levulose, pentose, and similar reducing substances in the urine occasionally lead to an incorrect diagnosis. In some instances Cammidge has seen alimentary glycosuria develop as a sequel of dextrinuria due to hepatic insufficiency, but always in persons past middle life, and it is rather significant that alimentary dextrinuria may be found in one or more of the young members of a family in which there is a history of glycosuria, usually of a mild type, occurring in old age.

Oriental J. Diseases of Infants, Kyoto, Japan

3: 1-22 (Jan.) 1928

*Artificial Feeding of Infants: III. Various Kinds of Sugar as Adjunct to Artificial Foods. T. Suzuki.—p. 1.
*Effect of Roentgen Ray on Blood in Whooping Cough. T. Suzuki and S. Kawashima.—p. 9.
Clinical and Experimental Investigation of Lymphocytes in Whooping Cough. M. Fukushima.—p. 10.
Specific Symptoms and Pathologic Findings in Infantile Measles. S. Kuraya.—p. 12.
Chemical Analysis of Bacilli of Whooping Cough. M. Fukushima.—p. 14.
Experimental Studies of Lymphocytosis of Whooping Cough Meningitis. M. Fukushima.—p. 15.
*Kottman's Reaction in Infantile Tuberculosis. T. Akasawa.—p. 16.
*Influence of Utraviolet Ray on Immune Body of Rabies. J. Takaya.—p. 17.
Histologic Findings in Winkel's Disease. K. Tada.—p. 18.

Artificial Feeding of Infants.—Suzuki asserts that cane sugar is the best adjunct to dried milk, in all proportions; dextrin-maltose comes next, and milk sugar comes last.

Effect of Roentgen Ray on Blood in Whooping Cough.—Suzuki and Kawashima assert that roentgenotherapy in whooping cough reduces the number of lymphocytes, ameliorates the cough spasm and also reduces the number of bacilli in the sputum.

Kottman's Reaction in Infantile Tuberculosis.—Akasawa applied the Kottman reaction in infantile tuberculosis and found that in the majority of cases in the initial stage of the disease the function of the thyroid was increased, though in a few rare cases it was decreased. In the final stage of the disease, however, it is always diminished. In cases of pleurisy, tuberculous abscess of the lymphatic glands and surgical tuberculosis, it is almost always diminished. The function of the thyroid does not always coincide with the severity of the tuberculosis but it fluctuates occasionally. The function of the thyroid has no influence on the velocity of sedimentation of red blood corpuscles in tuberculosis.

Effect of Ultraviolet Ray on Immune Bodies of Rabies.—Takaya asserts that the power of the immune serum of rabies is reduced by exposure to the ultraviolet ray.

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Bulletin Médical, Paris

41: 1333-1360 (Nov. 30-Dec. 3) 1927

Treatment of Obesity. P. Blum, L. Bouttier and P. Renault.—p. 1339.
*"Maternohemotherapy" and Hereditary Syphilis. Thorel.—p. 1341.

Maternohemotherapy and Hereditary Syphilis.—For several years Thorel has treated all cachectic infants with injections of maternal blood. Usually, the general condition changed for the better, the weight increased and the dermatoses disappeared within a few days. Most of these children were heredosyphilitics. The blood of syphilitics seems to contain antitoxins.

Paris Médical

63: 421-436 (Nov. 26) 1927

Diagnosis and Treatment of Dilatation of Bronchi. E. Sergent.—p. 421.
Familial Fibroma. R. Grégoire.—p. 432.
*Treatment of Gonococcal Arthritis and Other Gonorrheal Complications. M. Rodriguez.—p. 434.

New Treatment of Gonococcal Arthritis and Other Gonorrheal Complications.—Rodriguez has treated more than a hundred cases of gonorrhea with complications, especially arthritis, by means of antidiphtheritic serum and has obtained excellent results. Six illustrative cases are briefly reported. The second was that of a man who had had gonorrhea for six months and had severe pain in the left scapula, which was red and swollen. He was given 6,000 units of antidiphtheritic serum and the next day the pain had diminished. Three days after the first injection he received 1.5 cc. of toxin-antitoxin. That night there was an exacerbation of pain. After four days, the pain ceased, and eight days after the injection the patient's condition was satisfactory.

Presse Médicale, Paris

35: 1409-1424 (Nov. 19) 1927

Examination of Arterial Reactions with Pachon's Oscillometer. G. Billard.—p. 1409.
Pathogenesis and Surgical Treatment of Menière's Vertigo. H. Aboulker.—p. 1412.
*Treatment of Postoperative Retention of Urine. W. Butureanu and T. Burghele.—p. 1414.

Treatment of Postoperative Retention of Urine.—Using instillations of from 15 to 20 cc. of a 20 per cent borated glycerin solution into the full bladder, Butureanu and Burghele obtained cures in 92.8 per cent of fifty-three cases of postoperative retention of urine. As a rule, micturition occurred between five and fifteen minutes after the instillation.

Progrès Médical, Paris

54: 1810-1840 (Nov. 19) 1927

*Lead and Cancer. P. Girard.—p. 1817.
Influence of Lead Intoxication on Gestation. H. Vignes.—p. 1817.
Lead Treatment of Cancer. P. Duhail.—p. 1822.
Dangers of Lead. M. L. Lavedan.—p. 1828.
Excretion of Lead by Normal Persons. M. Marmeaux.—p. 1831.

Lead and Cancer.—Girard used electric endosmosis in impregnating with metallic ions the living, vascularized tissue of tumors in rats. Barium, strontium, calcium, magnesium and copper ions caused a temporary arrest of tumor growth. After a varying length of time, the tumor completed its development. Iron and cadmium did not have a marked effect. Lead ions caused, first, considerable hyperplasia and then retrogression. The neoplastic tissue was gradually absorbed and a second graft did not take.

54: 1842-1888 (Nov. 26) 1927

*Pseudosplenomegaly in Gastric Cancer. M. Léon-Kindberg and R. Garcin.—p. 1849.
Neuroses and Neuropathic Syndromes. H. Codet.—p. 1853.
Spread of Trachoma in France. L. Lortat-Jacob.—p. 1853.

Pseudosplenomegaly in Gastric Cancer.—A case of gastric cancer of the plastic linitis type, situated on the posterior wall of the stomach, together with a large subjacent glandular tumor, resembled splenomegaly throughout its development. It was only identified at operation; a few weeks later the patient died.

54: 2002-2052 (Dec. 10) 1927

Acute Pancreatitis. G. Menegaux.—p. 2009.
*Radiotherapy of Simple and of Exophthalmic Goiter. M. Joly.—p. 2017.
Historic Note on Treatment of Tuberculosis. M. Michel.—p. 2031.
Dynamogenic Effect of Activated Serum of Young Male Animals on Old Men. C. Levassort.—p. 2040.

Radiotherapy of Simple and of Exophthalmic Goiter.—Roentgen-ray treatment arrests a simple goiter and causes it to retrogress, on the one hand, by destruction of the newformed cells and, on the other, by excitation of the connective tissue. The method of treatment is described in detail. Joly brought about definite decrease in the size of four simple goiters. In exophthalmic goiter, the dosage is different. The right and the left side of the neck and the region of the thymus are irradiated. Usually five seances are given, followed by a rest period of two months.

Pediatria, Naples

35: 1313-1344 (Dec. 15) 1927

*Acute Endocarditis in the New-Born. G. Macciotta.—p.1313.
*Tuberculin Skin Tests. C. Sorrentino.—p. 1329.
Treatment of Congenital Equinus Varus. M. Abbate.—p. 1339.

Acute Endocarditis from Streptococcus Enteritis in the New-Born.—The first symptoms in the case described developed twelve hours after birth. The feces soon became diarrheal and were mixed with blood and pus. Fecal examination yielded streptococci. Signs of septicemia and endocarditis appeared gradually. A blood culture on the ninth day of the disease showed streptococci, which caused a lethal septicemia on inoculation into a guinea-pig. The baby died twelve days after birth. The organisms must have entered the alimentary tract immediately after delivery.

Skin Tests with Human, Bovine and Avian Tuberculin.—Sorrentino tested 400 children with human, bovine and avian tuberculin. In 185 with clinical signs of tuberculosis, 60 per cent, 49.2 per cent and 3.8 per cent, respectively, were found positive to the three several tuberculins. The corresponding figures for the 215 without clinical signs of tuberculosis were 21, 33.2 and 8 per cent. Of 156 children found positive to human tuberculin, 75.6 per cent were equally positive to bovine tuberculin. Of 215 children found negative to human tuberculin, 18.6 per cent proved positive to bovine tuberculin. In testing with the several tuberculins, one must distinguish the specific reaction to the tuberculin belonging to the strain that caused the infection and the general group reaction to the other tuberculins. The first appears earlier and is more intense.

Policlinico, Rome

34: 1813-1848 (Dec. 12) 1927. Practical Section

*Typhoid Reinfection. N. Sette.—p. 1813.
Cyst of Lung After Bullet Wound. E. Basso.—p. 1817.
Abscess of Lung After Puerperal Fever. D. Clemente.—p. 1821.
Ingestion of Acids and Iodides During Treatment with Alkali. L. Settimj.—p. 1822.

Possible Reactivation of Latent Typhoid Fever by Putrid Gases.—In a patient who worked in sewers, four successive attacks suggestive of typhoid fever developed in the course of five months. All blood cultures and serum tests proved negative the first three times. The fourth time a blood culture was positive for typhoid. Sewer gas, Sette believes, by its irritating properties, may change the condition of body fluids and even inhibit the usual serum reactions. In some cases a negative blood culture may be followed by a positive result after an injection of foreign protein or other substances.

Riforma Medica, Naples

43: 1057-1080 (Nov. 7) 1927

*Treatment of Osteomalacia. V. R. Perretti.—p. 1062.
*Antigen for Wassermann Test. G. Lanteri.—p. 1066.

Parathyroid Extract in the Treatment of Osteomalacia.—In a case of osteomalacia, in a woman, aged 46, treatment by mouth with parathyroid extract was followed by improvement of the calcium metabolism, a general sense of well being, subsidence of the pains in the bones and almost normal gait. Treatment lasted a month.

Phenol Alcohol as an Antigen for the Wassermann Test.—In 300 serums, Ninni-Molinari's phenol alcohol antigen yielded results identical with those obtained with the cholesterol alcoholic guinea-pig heart antigen and the Meinicke turbidity reaction. After dilution in sodium chloride solution (1:9), the antigen should be allowed to stand fifteen minutes before placing it in the tubes. The formula requires 1 cc. of absolute phenol, liquefied by heat, in 49 cc. of 96 per cent alcohol.

Bol. y Trab. de la Soc. de Cirugía de Buenos Aires

11: 863-883 (Nov. 23) 1927. Partial Index

*Ectopic Testes. R. A. Rivarola and A. C. Cucullu.—p. 877.

Treatment of Ectopic Testis.—Out of sixty patients with undescended testes, the condition was bilateral in 32 per cent; on the right side in 50 per cent and on the left side in 18 per cent. Of the seventy-nine testes involved, 91 per cent had an external inguinal, 6 per cent an internal inguinal and 3 per cent an intra-abdominal location. In sevénty-one, the operative result was excellent in fifty-one, good in nineteen, fair in one. Hernial sacs were found in 45 per cent. Including twenty-eight previously reported cases, the series embraces eighty-eight cases treated successfully.

Vida Nueva, Havana

20: 333-504 (Dec. 15) 1927. Partial Index

*Splenomegaly in Children. A. Aballi.—p. 333.
Treatment of Congenital Syphilis in Infants. T. Valledor.—p. 383.
*Large Stone in a Child. T. Valledor.—p. 414.
Pneumococcic Septicemia in Children. A. Castellanos.—p. 423.
Value of Therapeutic Serums. A. Castellanos.—p. 464.

Splenic Enlargement in Children.—Among 7,200 children 470 had an enlarged spleen. The most common primary conditions were: syphilis, 170; tuberculosis, thirty-four; malaria, thirty; intestinal parasites, thirty; celiac disease, twelve; typhoid, eleven. Anemia and hemolytic jaundice are not very common in Cuba. In most of eleven cases of von Jaksch's anemia, syphilis was a factor. Among so-called pseudoleukemias, the most common in Cuba is Hodgkin's disease; lymphosarcoma comes next and aleukemic lymphomatosis last. The splenomegalic rate furnishes an indirect index of disease in any district or town.

Large Bladder Stone in a Child.—In a child, aged 4, the stone removed from the bladder was as large as a hen's egg and weighed 39 Gm.

Archiv für Kinderheilkunde, Stuttgart

82: 241-320 (Nov. 11) 1927

*Citric Acid Milk in Diet of Dysenteric Children. S. Meyer.—p. 241.
*Sugar Treatment of Nephritis in Children. W. Hirschfeld.—p. 245.
Primary Tuberculosis of Skin. F. Goebel.—p. 257.
*Child's Appendix in Roentgenogram. J. Siegl.—p. 262.
*Polyarthritis Deformans in Children. W. E. Jolkwer.—p. 273.

Citric Acid Milk in Diet of Dysenteric Children.—Meyer recommends the use of citric acid milk in the treatment of dysentery of infants. She prepares it by boiling whole milk for five or ten seconds; then the milk is cooled quickly in cold running water. Next 5 Gm. of powdered citric acid and the proper amount of sugar are added for each liter of milk; the mixture is stirred constantly so as to make a very fine curd. Each liter of this milk has a caloric value of 850 to 900. The acid content is constant; p_H 4.4 to 4.5. The milk is given with rice gruel. The use of this milk has been wholly satisfactory.

Sugar Treatment of Nephritis of Children.—Hirschfeld found this treatment of value only in cases of nephritis with uremia or in which uremia was imminent. No effect on the albuminuria or hematuria attributable to the sugar was noted.

Child's Appendix in Roentgenogram.—Siegl asserts that filling of the appendix with barium may occur not only when it is inflamed or diseased but also when surrounding structures are similarly affected. Therefore, this roentgenologic finding is not pathognomonic of disease of the appendix.

Polyarthritis Deformans in Children.—Jolkwer directs attention to the fact that in all cases of chronic disease of joints an inquiry into the functioning of the thyroid should be made. He speaks of thyrogenous arthritis. Arthritis deformans in children is said to be identical with the same disease in adults.

Archiv für klinische Chirurgie, Berlin

148: 1-790 (Oct. 26) 1927. Congress Number. Partial Index

New Viewpoints in Preoperative and Postoperative Treatment of Patients. F. Rost.—p. 287.
*Operation for Embolism of Pulmonary Artery. A. W. Meyer.—p. 313.
*Surgery of Pancreas. V. Schmieden and W. Sebening.—p. 319.
*Surgery of Pancreas. G. von Bergmann.—p. 388.
Benign Solid Tumors of Pancreas. H. Haberer.—p. 398.
Modern Status of Joint Surgery. E. Payr.—p. 404.
Treatment of Bronchial Asthma by Paravertebral Rib Resection. Voelcker.—p. 522.
Venous Air Embolism; Experimental Study. S. Frey.—p. 536.

Operation for Embolism of Pulmonary Artery Successfully Performed.—The author has operated in two cases. One patient recovered completely. The second recovered from the operation but succumbed twenty-six days later to a new embolus. His technic, practically the same as that suggested by Trendelenburg, was as follows: The second and third ribs were resected subperiosteally for a distance of from 10 to 12 cm. The pleura was not injured. An incision was made into the pericardium and enlarged with the fingers until the pulmonary artery was seen. The latter was gently constricted with a rubber tube and incised longitudinally for 1.5 cm. Blackish blood and some emboli escaped. It is well to allow considerable blood to escape as that relieves the right heart. Next, the constrictor was tightened and a Trendelenburg embolism forceps was passed into the right branch of the pulmonary artery. The instrument was introduced three times. Next, the incision was compressed with the fingers and the constriction released for a few seconds to allow blood to flow through the artery. Once more the artery was constricted and the left branch was cleared of emboli; then once more digital compression was applied to the edges of the incision and the constriction was released. The constrictor was again tightened, the edges of the incision were raised with the fingers, a vessel clamp was applied, and the constriction was released. The edges were carefully coaptated with interrupted sutures. Closure of the pericardium followed.

Surgery of the Pancreas.—Schmieden's statistics, embracing the postwar period, include 1,510 cases of pancreatitis. The steady increase in the number of cases is explained by improvement in the knowledge of symptoms of acute hemorrhagic pancreatitis as well as by the tendency of modern surgery to operate early in cases of acute abdominal conditions. Seven hundred and ninety-seven cases occurred in fat persons. However, there were 175 typical asthenic individuals. Contrary to the old belief, the disease occurred more frequently in the female. The ratio between the sexes was 64.9: 34.4. The more frequent occurrence of gallstone disease in women is a probable explanation. Children were not exempt. Out of ten, four had concomitant bile tract disease. Newer studies indicate that mild pancreatitis is rather frequent. Such cases may heal spontaneously. Schmieden favors early operation as well as operating when in doubt. The mortality in nonsurgically treated cases is 95 per cent. Shock should never be considered a contra-indication to operation. The best approach to the gland is a transperitoneal one, through a slit in the gastro-colic ligament. In all cases, the peritoneal covering and the capsule proper should be divided. Areas of softening are invaded with the finger. The substance itself may be incised. It is most important to wall off the organ and place drains on all sides so as to take care of the exudate. At this stage the bile tracts should be examined carefully and necessary surgical procedures performed if the patient's condition permits. The mortality in cases treated by operation was 51 per cent. Continuous intravenous infusion of dextrose, with simultaneous administration of insulin in the preoperative period or for several days after the operation, seemed to exert a beneficial effect.

Surgery of the Pancreas.—Autodigestion by its ferment is the essence of pancreatitis. The presence of bacteria is not essential. Acute necrosis of the pancreas has been produced experimentally in dogs by injecting bile and oil into the pancreatic duct and ligating it. Preliminary administration of trypsin produced a sort of immunity in these animals. He calls attention to so-called "left-sided" symptoms as being diagnostic of mild attacks of pancreatitis in the absence of severe symptoms. These are a sense of constriction in the left side, pain which radiates to the left shoulder, to the pelvis, to the leg, simulating sciatica, or which is felt in the back in the area of the eighth to the tenth dorsal segments. All these, in the absence of dramatic symptoms, suggest dis-

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turbances of the pancreas. The proximity of the pancreas to the solar ganglion explains the wide range of the radiation of pain. Increase of diastase in the urine is next in importance. Absence of trypsin in the duodenal contents speaks for obstruction of the pancreatic duct or for loss of function. He believes that these mild attacks play an important rôle in the genesis of pancreatic diabetes. Perigastritis, periduodenitis, and signs of residual inflammation in the lesser peritoneal cavity point to the frequency of mild attacks of pancreatitis. Excessive functional activity of the organ is a factor in the severity of an attack. Even in mild attacks he prescribes total abstinence from food for the first three days and then a strict carbohydrate diet. A causal relationship between obesity, pancreatic attacks and gluttony is probable. Not alone cholecystopathies, but dyskinesia of the bile tracts, play an important etiologic rôle. He reminds the surgeon that the gallbladder, besides possessing a bile condensing function, acts as a regulator of pressure in the extrahepatic bile ducts. Bile may enter the pancreatic ducts, causing damage, and, on the other hand, pancreatic secretion may enter the bile ducts, causing disease of the bile ducts, gallbladder and of the liver itself. A trypsin therapy may be worked out in the future which will immunize predisposed individuals and those who have had mild attacks against the acute severe hemorrhagic attack.

Deutsche medizinische Wochenschrift, Berlin

53: 2057-2106 (Dec. 2) 1927

Increasing Rarity of Diagnosis "Organ Neurosis." G. von Bergmann. —p. 2057.
*Extrapleural Thoracoplasty. L. Brauer.—p. 2060.
Choice of Anesthetic. V. Schmieden and W. Sebening.—p. 2062.
Radium Treatment in Gynecology. H. Eymer.—p. 2069.
*Origin of Senile Cataract. Birch-Hirschfeld.—p. 2072.
*Disturbances of Hearing and Equilibrium in Mumps. O. Voss.—p. 2074. C'cn.
Attempts to Infect the Llama with Syphilis. E. Hoffmann.—p. 2076.
Modern Treatment of Diabetes in Childhood. H. Kleinschmidt.—p. 2076.
Treatment of Pernicious Anemia with Insulin. J. Neuburger.—p. 2078.
Examination of Psychiatric Patients. M. Rosenfeld.—p. 2079.
Mode of Action of Various Alkyl Arsinic Acids. H. Kitz.—p. 2082.
Fattening Treatment with Synthalin. R. F. Weiss.—p. 2083.
Ovarian Transplantation. R. Schreiner.—p. 2084.
Stethoscope with Extra Pieces to Avoid Transmitting Infection. Kirschstein.—p. 2084.
Fall in Birth Rate and Infantile Mortality. Prinzing.—p. 2087.

Extrapleural Thoracoplasty in Treatment of Unilateral Pulmonary Tuberculosis.—Brauer advises that his extensive thoracoplasty should be done in one stage, if possible, at most in two with an interval of not longer than four weeks. The ribs are divided as close as possible to the transverse processes. The periosteum is retained. Particular care must be taken to spare the muscles of the back; the tendons must not be torn from their insertions. With correct technic, he asserts, the operation does not result in deformity. While complete collapse should be obtained, the spinal column must remain straight and the function of the muscles of the shoulder girdle and back must be undisturbed.

Light Rays of Short Wave Length and Senile Cataract.—Birch-Hirschfeld fails to find support for the theory that senile cataract is caused by absorption in the lens of light rays of short wave length.

Disturbances of Hearing and Equilibrium in Mumps.—The cause of these disturbances, which occur more frequently in older children and in adults, Voss sees in the serofibrinous meningitis that frequently accompanies the infection.

Münchener medizinische Wochenschrift, Munich

74: 1993-2044 (Nov. 25) 1927

*Modern Surgery of Carcinoma of Rectum. V. Schmieden.—p. 1993.
Modern Methods of Determining Speed of Arterial Circulation. M. Hochrein and R. Meier.—p. 1995.
Determination of Condition of Heart and Diagnosis of Cardiac Weakness. P. Martini.—p. 1998.
Delivery with Contracted Pelvis. H. Sellheim.—p. 2001.
Infant Feeding. L. Langstein.—p. 2004. C'td.
Loss of Appetite, Abdominal Pain and Vomiting in Childhood. J. Brock. —p. 2006.
*Habitual Hawking and Laryngitis. M. Nadoleczny.—p. 2009.
Physician's Thoughts on Medicine: Eternal Verities. A. Bier.—p. 2011. C'td.
*New Method of Increasing Differential Diagnostic Certainty in Gallbladder Roentgenoscopy. A. Grebe.—p. 2016.
*Action of Chlorophyl in Arteriosclerosis. E. Bürgi.—p. 2019.
Mixed Vaccines in Treatment of Gonorrhea. H. Loeb.—p. 2020.
Intuition in Medicine. H. Kerschensteiner.—p. 2021.
Early Diagnosis of Bleeding from Meningea Media. A. Krecke.—p. 2023.

Modern Surgery of Carcinoma of Rectum.—Schmieden writes for the general practitioner, to secure his cooperation by removing prejudices and informing him as to the latest views on the subject. Carcinoma of the rectum, as well as all adenocarcinomas of the large intestine, has a worse reputation than it deserves. The number of permanent cures that the modern (radical) operator can report is much larger than is in general believed. But these results are obtained only when, as in surgery of the breast, the entire organ, with the entire first layer of regional lymph glands and including all the connective tissue layers belonging thereto, is removed. The operation should not be undertaken by any surgeon who has not ample opportunity for practice in it. He advocates the abdominosacral, radical operation in one stage as the method of choice for patients able to withstand the large operation. He does not favor the preliminary establishment of a artificial anus as a routine measure. An advantage of the abdominal method lies in the possibility that it affords of palpating the liver for metastases before proceeding with the radical operation. He regards this as of great importance. If the hepatic metastases are small and it is certain that the radical operation can be easily performed, it may still be carried out. The advantage to the patient, though only temporary, will be considerable. Since the great majority of all carcinomas of the large intestine, including the rectum, originate in polypi, these growths should be sought for and included in the operation. This may necessitate the removal of the entire sigmoid flexure and of the entire gland-containing mesosigmoid, sometimes with segments of the bladder or uterus. He considers that the anxiety over the distress caused by an artificial anus is frequently exaggerated. With few exceptions, he finds complicated plastic operations unnecessary. The practitioner should endeavor to dissipate the spector of the artificial anus as known to the laity, since it often results in delaying the operation and even the preliminary examination. With the abdominosacral operation, the high-seated rectal carcinoma is as operable as the low seated.

Habitual Hawking and Chronic Pharyngitis.—Nadoleczny maintains that many cases diagnosed as chronic pharyngitis started in neuroses. His patients fell into two main groups: those whose profession required them to use the voice a great deal and women and girls of all ages. The disturbance was frequently first noticed after straining the voice or after taking cold, i. e., occasions that fixed the attention on the throat. In another group the throat symptoms appeared after times of excitement or anxiety. The morbid attention to the throat results in hawking; this, by a vicious circle, results in increased secretion of mucus and in the local phenomena of inflammation.

New Method of Increasing Differential Diagnostic Certainty in Gallbladder Roentgenoscopy.—Grebe's experience was that artificial irritants as well as pathologic irritations of various sorts, even those originating outside the gastrointestinal canal and at a distance from the biliary tract, prevented the obtaining of clear gallbladder shadows in the roentgenogram. Preliminary administration of atropine overcame this difficulty. In the healthy person a good gallbladder shadow can usually be obtained without this aid, it is in sick persons with a healthy gallbladder that atropine or similarly working remedies is of value in opposing reflex influences on the extrahepatic biliary tract. Grebe used the method in twenty cases with satisfactory results.

Action of Chlorophyl in Arteriosclerosis.—In fifteen cases of arteriosclerosis without valvular defect, Bürgi has seen the cardiogram approach normal after administration of chlorophyl. In most cases there was also a fall in the blood pressure. In three aged patients, the heart curve and the blood pressure showed little change, but these patients also improved in their general condition. He recommends small doses. Only extracted chlorophyl is effective.

Wiener Archiv für innere Medizin, Vienna

14: 353-536 (Oct. 10) 1927

Dissociation of Respiration: Hiccup and Its Relation to Respiration. E. Rechnitzer.—p. 353.
*Blood Transfusion in Thrombopenic Purpura. H. Krasso.—p. 377.
*Irregular Ventricular Tachycardia. R. Fischer.—p. 405.
*Insulin and Blood Pressure. R. Strisower.—p. 429.
Cerebral Oligopnea. L. Hess and E. Pollak.—p. 435.
Intraventricular Conduction Disturbances. D. Scherf.—p. 443.
Peptidase Determinations in the Sick. L. Böhmig.—p. 463.
Disturbance of Physico-Chemical Regulation in Renal Insufficiency; Treatment. O. Klein.—p. 475.
*Quantitative Determination of Gastric Function. P. Mahler and Z. Stary. —p. 491.
*Individual Clinical Status of Many Subfebrile Conditions. A. Edelmann. —p. 505.
Experimental Test of Oral Administration of Insulin. W. Löwenstein and O. Merdinger.—p. 523.

Value and Mechanism of Action of Blood Transfusion in Thrombopenic Purpura.—In the first of the two cases of thrombopenic purpura reported by Krasso, the patient was given a blood transfusion of 500 cc. by the Percy method. The immediate general effect was good and the number of thrombocytes was greatly increased. The second case was one of hemorrhagic diathesis, at first expressed only by prolonged genital hemorrhages after a labor and leading after about six months to an extensive purpura involving the skin and mucous membranes. The patient was given a transfusion of 450 cc. of blood. The behavior of the thrombocytes and that of the erythrocytes in these two cases indicates that the effect is one of simple substitution, in which the donor's blood brings to that of the recipient blood elements which it lacks, in forms capable of functioning.

Irregular Ventricular Tachycardia.—One of Fischer's patients had had paroxysmal attacks of ventricular tachycardia, which lasted from a few minutes to several days. In the ventricle there was regular allorrhythmia, which started from two centers. The auricular rhythm was unaffected. Auricular vibration was observed once. The dissociation between the beat of the auricle and that of the ventricle brought about pulse inequality and deficiency. Between attacks, ventricular extrasystoles were noted, which appeared to be interpolated and resulted in marked extension of the conduction time. At necropsy an aneurysm of the heart through closure of the descending branch of the left coronary artery was found. This was in causal relation to the tachycardia. Cardiac arrhythmias in paroxysmal tachycardia are generally caused by the activity of several foci of inflammation. The dissociation during the attacks is attributable to an impaired conduction of stimulus because of extrasystoles. The sphygmographic records, as well as the electrocardiogram, are valuable for differentiating the forms of tachycardia.

Insulin and Blood Pressure.—Strisower examined the effect of insulin on blood pressure and blood sugar in a large number of ambulant patients with hypertension. The cases included hypertension in diabetes, hypertension without renal change (essential hypertonia) and hypertension in renal disease. The greatest diminution of blood pressure after insulin was found in the first group, although the hypertension was not always very great. The decrease in blood sugar was considerable but did not run parallel to the fall in blood pressure. Fifteen patients with hypertonia showed the same characteristics, except that the fall in blood pressure after insulin was less. No parallelism in the effect of the pancreatic hormone on blood pressure and on blood sugar could be discovered. The high average of the blood sugar in patients with hypertonia is noteworthy. Although the blood pressure values were highest in seven patients with chronic nephritis, the result of the administration of insulin was less marked than in normal subjects. The blood sugar fell about 35 mg. while the blood pressure fell not at all or about 5 mm. Hg. The author thinks the most probable explanation of the action of insulin on hypertension is that the hormone of the pancreas exerts a general effect just as do solution of pituitary and the principles of other glands of internal secretion.

Quantitative Determination of Gastric Function.—Three cases of anacidity, six of hypacidity, four of normal acidity and three of hyperacidity, were studied by Mahler and Stary. In all the cases but one, the test breakfast (dextrose solutions) and the histamine injection were given simultaneously. Although 1 mg. was given, there were never any by-effects. There followed a rise in total chlorine secretion of about 82.0 per cent and of total hydrochloric acid secretion of about 116 per cent. This rise is chiefly caused by an increase in the concentration of the secretion, rather than in its amount. The average rise in the chlorine concentration, in 178 single determinations, was about 41 per cent of the parallel value in the standard test, the increase in the peak value was about 26 per cent of the parallel value in the standard test. The hydrochloric acid concentration rose about 85 per cent, the peak value about 86 per cent. The increase of hydrochloric acid secretion in the histamine experiments amounted on the average to 272 mg. of chlorine, which corresponds to a hydrochloric acid content of 77 cc. of a tenth-normal hydrochloric acid solution. The greatest rise observed amounted to 736 mg. of chlorine or 207 cc. of a tenth-normal hydrochloric acid solution. Quantitative chlorine indexes show a difference in rise according to the acidity. Those with hyperacidity show the least increase, and often a fall in the quantitative chlorine index; those with hypacidity show the greatest increase, while those with normal amount of acid are in the middle. In regard to the course of the rises in concentration following injection of histamine, the following law was demonstrated: The maximum acid concentration precedes the maximum chlorine concentration: the chlorine index reaches its peak before either.

Individual Clinical Status of Many Subfebrile Conditions.—In a series of about thirty-five cases, about twenty-five presented subfebrile temperature, general fatigue, hypochromic anemia, relative lymphocytosis. Distinct eosinophilic bodies similar to protozoa could be demonstrated, which resembled in some respects piroplasma, in others malaria plasmodia. This disease picture denotes chronic infectious anemia. The other cases in the series which presented a characteristic disease picture were associated with subfebrile temperature, but showed no eosinophilia. Enclosed in the erythrocytes were bodies which stained by the May-Giemsa method and resembled diplococci or cocci morphologically.

Zeitschrift für d. ges. Neurol. u. Psychiat., Berlin

111: 1-332 (Oct. 28) 1927

*Pathogenesis and Treatment of Raynaud's Disease. J. Borak.—p. 1.
Embryonic Postures in Mental Diseases. A. K. Lentz.—p. 17.
Poems of a Schizophrenic. O. Hinrichsen.—p. 24.
Psychologic Evaluation of Telepathic Processes. S. Bernfeld.—p. 49.
Attitude of the Schizophrenic to His Disease. O. Hinrichsen.—p. 59.
Hasheesh Intoxication. F. Frankel and E. Joel.—p. 84.
Thought Shunning, Blocking and Classification: Schizophrenic Thought Disturbances. H. Bürger.—p. 107.
Photo-Esthesiometry. A. A. Suchoff.—p. 141.
*Epilepsy and Alcohol. W. Küffner.—p. 145.
Histopathology and Pathogenesis of Wilson Pseudosclerosis Group. R. Rotter.—p. 159.
Importance of Endocrine Disturbances in Dystrophia Myotonica. O. Maas and E. Haase.—p. 223.
Interpretation of Solitary Clinical Symptoms with Aid of Principles of Centripetal Innervation of Internal Organs. M. Lapinsky.—p. 229.
Peculiar Extrapyramidal Motor Attacks. I. N. Filimonoff.—p. 251.
Early Diagnosis of Huntington's Disease; Investigation of Heredity. C. Rosenthal.—p. 254.
Blumenthal's Reaction with Cerebrospinal Fluid in Syphilis of Central Nervous System. B. N. Sserafimov.—p. 270.
Neurologic Picture of Mercury Poisoning. A. E. Kulkow.—p. 274.
Actogram as Clinical Sleep Control. E. Guttmann.—p. 309.
Alterations in Hippocampus Major in Apoplectic Cerebral Hemorrhages. K. Neubürger.—p. 325.
"Tuberculosis as Cause of Death in Schizophrenia, Manic-Depressive Insanity and in Average Persons." L. Wolfer.—p. 332.

Pathogenesis and Treatment of Raynaud's Disease.—The pathogenic significance of the bone changes confirms the hypothesis that Raynaud's disease must be treated as a disorder of spinal cord origin. Borak believes that an increased activity of certain spinal cord centers is the cause of the disease. The roentgen-ray treatment of those portions of the spinal cord which supply the diseased extremities gave definite therapeutic results in nine cases, six in the second stage, three in the first.

Epilepsy and Alcohol.—In his study of 2,000 epileptics, 1,100 men and 900 women, Küffner found drunkenness in the family history in 6.1 per cent. Only about 30 per cent of the patients developed epilepsy after the twentieth year and

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very many of these were not alcoholics before the disease appeared. Among the 2,000 patients, 8 per cent of the men and 1.3 per cent of the women were listed as drinking to excess. Increased sensitiveness to alcohol was found in very few cases.

Zeitschrift für Hygiene und Infektionskrankh., Berlin

108: 1-257 (Oct. 24) 1927

*Bactericidal Power of Bowel; Its Relation to Typhoid Infection. W. Löwenberg.—p. 1.
Production of Antigens by Means of Bacteriophage Lysins. P. Maslakowetz and S. Kasarnowsky.—p. 13.
Purification of Smallpox Vaccine with One Per Cent Phenol. N. Goschanskaja.—p. 23.
Disinfection of Water with Chlorine Solution. A. Müller.—p. 27.
Development of Club Formations in Ringlike Arrangement Around Dead Tubercle Bacilli: Tissue Reaction: Genesis of Actinomyces Formations. K. Meyer and E. Mayer.—p. 38.
*Presence of Paratyphoid B and Paratyphoid-Like Strains in Organs of Recently Killed Healthy Animals. H. Bermann.—p. 54.
Unity of Precipitinogen and Antitoxin Binding Substance in Diphtheria Toxin. E. Hoen, L. Tschertkow and W. Zipp.—p. 61.
*Spreading of Micro-Organisms in Dust, Especially Influenza Bacilli. B. Lange and E. Jochimsen.—p. 66.
Antibody Formation in Cerebrospinal Fluid of Rabbits After Suboccipital Injection of Antigens. E. Illert.—p. 90.
Bacteriology of Typhus. E. Rix.—p. 103.
Adsorption and Disinfection: I. Experiments with Mercury and Silver Salts. G. Lockemann and H. Picher.—p. 125.
Proteus "XV" Strain. L. Silber.—p. 146.
Ergographic Investigation of Extensor Muscles of Hands of Lead Workers. L. Schwarz and C. Albrecht.—p. 162.
*Scarlet Fever: IV. Streptococci in Desquamation of Convalescents and Surroundings of Patients. H. Deicher.—p. 167.
*Scarlet Fever: V. Variability of Scarlet Fever Streptococci. U. Friedemann, H. Deicher and L. Abraham.—p. 181.
*Change in Pathogenesis for Animals and in Toxicity of Scarlet Fever Streptococci Through Animal Passage. U. Friedemann and H. Deicher.—p. 192.
Influence of Scorbutus on Disposition to Infections. P. Schmidt-Weyland and W. Kölzsch.—p. 199.
Are Specific Precipitate Substances of Three Pneumococcus Types Haptenes? O. Schiemann and W. Casper.—p. 220.

Bactericidal Power of Bowel: Its Relation to Typhoid Infection.—Löwenberg has determined experimentally and clinically that the duodenal secretion is bactericidal for typhoid and dysentery bacilli. It is suggested that during the existence of typhoid this power may be lessened or may even disappear. Furthermore, some of these organisms that come from the biliary passages are carried through the small bowel so quickly that they escape the bactericidal action of its juices. Gastro-intestinal disturbances interfere with the normal secretion—and under such conditions typhoid bacilli would pass through the upper part of the small bowel unharmed and find lodgment in the lymph patches further down. Because of the frequent finding of typhoid bacilli in and on the tonsils in cases of typhoid, attention is directed to the tonsil as the portal of infection.

Presence of Paratyphoid B and Paratyphoid-Like Strains in Organs of Recently Killed Healthy Animals.—Bermann found paratyphoid B bacilli in the muscles, organs and feces of six (3.7 per cent) of 162 recently killed normal pigs, cows, sheep and horses. These bacilli were found most often in the liver.

Spreading of Micro-Organisms in Dust, Especially Influenza Bacilli.—The infectivity of dried pathogenic microorganisms carried by dust is pointed out by Lange and Jochimsen, who made careful experimental studies in this field. The dust on floors, clothing and handkerchiefs contains bacteria that retain their infectious power in an astonishing degree for a long time.

Scarlet Fever: Streptococci in Desquamation of Convalescents and Surroundings of Patients.—Deicher confirms the statements of others that the desquamation of scarlet fever convalescents does not contain streptococci; however, hemolytic streptococci can be found on the tonsils of all convalescents. Therefore, termination of quarantine should be determined by bacteriologic examination of the throat and tonsils rather than by cessation of desquamation. Scarlet fever streptococci may always easily be found on the walls of the sickroom and on the bedding.

Scarlet Fever: Variability of Scarlet Fever Streptococci.—Friedemann et al. emphasize the fact that absence of hemolytic streptococci from the throat of scarlet fever patients does not preclude these persons from acting as carriers. These streptococci show considerable variability in their toxin-forming power. They may lose it—but they also regain it very easily under appropriate conditions.

Change in Pathogenesis for Animals and in Toxicity of Scarlet Fever Streptococci Through Animal Passage.—Friedemann and Deicher found that the virulence of the Dick strain of scarlet fever streptococci was not increased by animal passage, whereas that of strain 77 and the Kattner strain was markedly increased. The toxicity of strain 77 was also increased, whereas the Kattner strain lost its toxicity entirely. The authors see in these observations an explanation of the failures to immunize—when detoxicated strains are used.

Zeitschrift für Kinderheilkunde, Berlin

44: 235-412 (Oct. 19) 1927

*Antirachitic Action of Milk Irradiated with Ultraviolet Rays in Carbon Dioxide Atmosphere. K. Scheer and P. Rosenthal.—p. 235.
Hemoclastic Widal Crises in Infants. L. O. Finkelstein, R. A. Wiltand and N. A. Spizyna.—p. 245.
*Acute Aleukemic Lymphadenosis. O. Herz.—p. 255.
Treatment of Gastric Atony in Infants and Children with Solution of Pituitary. E. Koenigsberger and W. Mansbacher.—p. 265.
*Treatment of Rumination in Infants. W. Mansbacher.—p. 277.
*Investigations of Irradiated Ergosterol. A. Hottinger.—p. 282.
Sugar-Building Value (Carbohydrate Content) of Vegetables in Diabetic Diet. R. Wagner and J. Warkany.—p. 322.
Case of Multiple Annular Granuloma in Child. L. Lemež.—p. 328.
Inflammations of Middle Ear in Infants. F. von Torday.—p. 339.
Blood Picture in Otitis of Infants. G. Z. von Rokay.—p. 347.
Studies in Rickets. O. Jäger.—p. 358.
*Relationship of Congenital Osteoporosis (Craniotabes) to Rickets. H. Abels and D. Karplus.—p. 365.
Technic of Roentgenographic Procedures in Young Children. L. Freund.—p. 393.

Antirachitic Action of Milk Irradiated with Ultraviolet Rays in Carbon Dioxide Atmosphere.—By means of a special apparatus, which is described, Scheer and Rosenthal drive all the oxygen out of the milk by sending a stream of carbon dioxide through it. The milk passes on into water-cooled chambers (not unlike the radiator of an automobile) and is exposed to ultraviolet rays. This procedure is said to leave the milk free from the disagreeable taste that is characteristic of irradiated milk. The taste now is a slightly acid one and rather pleasant. Children do not object to it. The daily dose of this milk is from 300 to 500 cc. It is said to effect a cure in from four to six weeks.

Acute Aleukemic Lymphadenosis.—The case cited by Herz differed somewhat from the usual. The patient was 7 years of age. The family history was negative. The child had had measles, chickenpox, whooping cough. It suddenly became pale and lost its appetite and strength. The anemia became so severe that a transfusion was done. Later pyuria was noted and this symptom persisted until the end. It was then that a diagnosis of pyonephrosis was made and operation was performed. A greatly enlarged kidney, resembling a solid tumor, was found. On section, it proved to be thickly infiltrated with small leukocytes. The child made an uneventful recovery from the operation. The duration of the illness was only about four months. At the necropsy, the liver, spleen, kidneys and stomach exhibited more extensive involvement than the lymph nodes. In general, leukopenia had been present constantly. The number of leukocytes never exceeded 25,000 and they fell as low as 500. However, there was no question as to the correctness of the postoperative diagnosis: acute lymphadenosis.

Treatment of Rumination in Infants.—Mansbacher feeds his patients with gastric atony more solid food and reports good results. He begins with milk porridge, and winds up with cream cheese, eggs, meat and bread. He claims that the solid food inhibits reflexes ordinarily excited by the distention caused by liquid food, and it raises the tone of the gastric musculature, which, in turn, relieves the patient of the feeling of distention, hence he has no desire to ruminate.

Investigations of Irradiated Ergosterol.—Hottinger reports his experimental and clinical observations on the effect of irradiated ergosterol on rickets. Dogs recovered quickly. Fifteen children with active rickets recovered in from four to six weeks. The dose for infants is 1 mg. daily; in cases

of long standing, 2 or 3 mg. may be given. A man, aged 25, with inveterate late rickets and tetany, benefited markedly from the treatment. In a few weeks, the tetany disappeared and calcification was normal. One early and two old cases of osteomalacia also yielded promptly. Adults receive 5 mg. of irradiated ergosterol daily. Recurrences were noted when the treatment was discontinued too soon.

Relationship of Congenital Osteoporosis (Craniotabes) to Rickets.—Abels and Karplus assert that there is a relationship between these two clinical entities. Whenever marked evidence of osteoporosis, such as craniotabes or large fontanels and cranial sutures without any craniotabes, was present at birth, rickets almost invariably developed after the age of four months, whereas rickets never developed when there was no evidence of craniotabes at birth. The authors regard these signs of insufficient ossification as being prerachitic. Early resort to ultaviolet irradiation in these cases is advisable as a preventive measure against the development of rickets.

Zentralblatt für Gynäkologie, Leipzig

51: 2969-3032 (Nov. 19) 1927

*Basal Metabolism and Specific Dynamic Action of Foodstuffs in Relation to Ovarian Function. R. Hornung.—p. 2971.
Forceps Delivery in the Roentgenogram. W. Lüttge.—p. 2975.
Cause of Skin Emphysema During Delivery. S. Joseph and E. Rabau. —p. 2978.
Insufflation of Carbonic Acid Gas and Injections of Lobelin After Operations. H. Hellendall.—p. 2980.
Sacral Hernia of Pregnant Retroflexed Uterus After Amputation of Rectum and Resection of Sacrum. E. Fischer.—p. 2986.
Intraperitoneal Hemorrhage from Myoma, Threatening Life. H. Alexander. —p. 2988.

Basal Metabolism and Specific Dynamic Action of Foodstuffs in Relation to Ovarian Function.—In a study of 150 cases of various functional disturbances of the ovary, Hornung found that the ovary did not exercise any regular direct influence on either the basal metabolism or the specific dynamic action of foodstuffs. The cause of "ovarian" amenorrhea and hypomenorrhea is to be found, in most cases, in pluriglandular disturbance, in which the pituitary appears to play a predominant rôle.

Nederlandsch Tijdschrift v. Geneeskunde, Amsterdam

71: 1917-2024 (Nov. 5) 1927. Partial Index

*Indications for Synthalin Treatment. A. H. A. Martens, C. H. Koers and C. De Jong.—p. 1918.
Giemsa Stain in Blood Preparations. J. Coenaes.—p. 1934.
*Rapidity of Blood Formation in Severe Anemia with Various Diets. C. Elders.—p. 1939.
Remarkable Swelling of Mucous Membrane of the Cheek. P. Plantenga. —p. 1944.

Indications for Synthalin Treatment.—Martens et al. report the results of synthalin treatment in ten cases of diabetes. They found that 1 mg. of synthalin could effect the oxidation of from 0.5 to 3.4 Gm. of glucose. In two cases of acidosis it gave better results than insulin. It is advisable to determine the hepatic function before starting treatment with synthalin. In most of the cases the blood sugar curve did not run parallel with the bilirubin content of the duodenal juice. When this is so, more importance should be attached to the bilirubin values, for, in their experience, high bilirubin values in the duodenal juice bespeak good results from synthalin treatment. Urobilin or increase of urobilinogen was almost never noted after administration of synthalin. Emaciation followed synthalin treatment in some of their cases. A cholagogue proved effectual in eliminating the by-effects of the treatment. It does not appear to be necessary to the success of treatment that the gastric function should be in order, but it is important that the liver should be secreting well. Even more than with insulin, treatment of diabetes with synthalin must be individual.

Rapidity of Blood Formation in Severe Anemia with Various Diets.—Elders publishes curves showing the rapidity of the hemoglobin increase in ten cases of pernicious anemia and of sprue with various diets. He recognizes the value of liver, but believes that treatment with beefsteak, carried out thoroughly, gives as good results as are obtained with 250 Gm. of cooked liver daily. He recognizes a common etiology for sprue and pernicious anemia.

Acta Pædiatrica, Upsala

7: 1-190 (Nov. 11) 1927

Application of Pregl's Micro-Analysis to Determination of Free Phosphates in Blood. E. Jorpes and H. Magnusson.—p. 1.
Importance of Premature Birth in Etiology of Nervous and Mental Diseases of Infants. C. Looft.—p. 15.
Study of Constitutional Anomalies in Children, Especially Their Metabolism. M. Masslov.—p. 60.
*Nasopharyngeal Infections as Cause of Dyspepsia, Cholera Infantum and Septicemia in Infants. H. Ernberg.—p. 87.
Calmette's Method of Vaccination Against Tuberculosis. A. Wallgren. —p. 120.
Dick Reaction in Scarlet Fever. L. Abramson.—p. 138.
*Prophylaxis of Rickets. I. Jundell.—p. 143.
*Familial Congenital Myxedema. N. Johannsen.—p. 179.

Nasopharyngeal Infections as Cause of Dyspepsia, Cholera Infantum and Septicemia in Infants.—Investigations have shown that epidemics in large institutions for infants are more severe in extent and intensity in winter than in summer. Closer analysis of this increased sickness during the winter shows it to be chiefly due to an increased number of dyspepsias, nutritive disturbances and allied conditions and that these conditions are mainly caused by pharyngeal infections. It is suggested by Ernberg that pharyngeal infection with its complications is far the most important and frequent cause of hospital epidemics, the "hospitalismus" of olden times, as well as of similar conditions in the homes.

Prophylaxis of Rickets.—Jundell asserts that florid rickets can be cured and prevented in all cases by simple medicinal and dietetic treatment, even in the case of a child particularly predisposed to the disease. He used cod liver oil almost exclusively.

Familial Congenital Myxedema.—Johannsen reports three cases of congenital myxedema in siblings. Although one died before the disease was recognized, subsequent review of the symptoms and the mother's statements left no doubt as to the nature of the disease. Two other children died from an unknown cause, but the mother was convinced that they, too, suffered from this disease.

Finska Läkaresällskapets Handlingar, Helsingfors

69: 877-976 (Nov.) 1927

*Endocrine Etiology of Juvenile Cataract. V. Grönholm and C. M. Hohenthal.—p. 877.
Elimination of Uric Acid by Kidney; Elimination of Sodium Chloride and Water: I. Experiments with Epinephrine, Atropine and Pituitary Preparation. K. Lindberg.—p. 899.
Bilirubin in Epidemic Jaundice. Z. Eriksson.—p. 937.
*Operative Treatment of Pylorospasm in Infants. H. von Willebrand. —p. 946.

Endocrine Etiology of Juvenile Cataract.—Grönholm and Hohenthal publish five cases of unusual type in patients aged from 13 to 32, with marked anomalies in body structure and in nature. While the clinical diagnosis in the cases differed, clinically demonstrable disturbance in the glands of internal secretion and a rapidly developing bilateral cataract were common to all. Sight was restored by surgical treatment, except in one eye in which postoperative complications set in. On the basis of their study of these cases, they present a partly new classification of the etiologic groups in juvenile cataract.

Operative Treatment of Pylorospasm in Infants.—Von Willebrand reports on three patients, two treated operatively with return to normal development. He urges operative treatment in cases of pyloric tumor.

Hospitalstidende, Copenhagen

70: 1061-1080 (Nov. 10) 1927

*Case of Rat Bite Fever. N. Petersen and K. Overgaard.—p. 1061.

Case of Rat Bite Fever.—The diagnosis of rat bite fever (sodoku) in Petersen and Overgaard's case in a boy, aged 14, is confirmed by the history, clinical course, typical primary lesion and temperature curve, characteristic skin lesions, and the prompt curative action of neoarsphenamin. A febrile disorder with similar temperature curve was produced in a guinea-pig by infusion of blood from the patient. Spirochetes were not found, but several other typical cases without demonstrable spirochetes are cited. The administration of neoarsphenamine in full doses is advised.

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